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ENCYCLOPÆDIA PERTHENSIS.

(1.) * MINE. *n. ſ.* [*mine*, French; *mwyn* or *mwn*, Welſh, from *maen lapis*, in the plural *meini*.] 1. A place or cavern in the earth which contains metals or minerals.—

In your large heart was found a wealthy *mine*. *Waller*.

—A workman, to avoid idleneſs, worked in a groove or *mine*-pit thereabouts, which was little eſteemed. *Boyle*.—A *mine*-digger may meet with a gem, which he knows not what to make of. *Boyle*.—The heedleſs *mine*-man aims only at the obtaining a quantity of ſuch a metal as may be vendible. *Boyle*. 2. A cavern dug under any fortification that it may ſink for want of ſupport; or, in modern war, that powder may be lodged in it, which being fired at a proper time, whatever is over it may be blown up and deſtroyed.

What *mine* hath erſt thrown down ſo fair a tower? *Sidney*.

—Build up the walls of Jeruſalem, which you have broken down, and fill up the *mines* that you have digged. *Whitgift*.—

Others to a city ſtrong
Lay ſiege, encamp'd; by batt'ry, ſcale, and *mine*,
Aſſaulting. *Milton*.

(II.) MINE, in the military art, (§ I. *def.* 2.) See MINE, § II. in laſt volume, p. 720. From a great number of experiments, it appears, 1. That the force of a mine is always towards the weakeſt ſide; ſo that the diſpoſition of the chamber of a mine does not at all contribute to determine this effect. 2. That the quantity of powder muſt be greater or leſs in proportion to the greater or leſs weight of the bodies to be raiſed, and to their greater or leſs coheſion; ſo that we muſt allow for each cubic fathom of looſe earth or 10 lb. Of firm earth and ſtrong ſand, 11 or 12 lb. Of flat clayey earth, 15 or 16 lb. Of new maſonry, not ſtrongly bound, 15 or 20 lb; and old maſonry, well bound, 25 or 30 lb. 3. That the aperture, or *entonnoir* of a mine, if rightly charged, is a cone, the diameter of whoſe baſe is double the height taken from the centre of the mine. 4. That when the mine has been overcharged, its entonnoir is nearly cylindrical, the diameter of the upper extreme not much exceeding that of the chamber. 5. That beſides the ſhock of the powder againſt the bodies it takes up, it likewiſe cruſhes all the earth that borders upon it, both underneath and ſidewiſe. To charge a mine ſo as to have the moſt advantageous effect, the weight of the matter to be carried muſt be known; that is, the ſolidity of a right cone, whoſe baſe is double the height of the earth over the centre of the mine: thus, having found the ſolidity of the cone in cubic fathoms, multiply the number of fathoms by the number of pounds of powder neceſſary for raiſing the matter it contains; and if the cone contains matters of different weights, take a mean weight between them all, always having a regard to their degree of coheſion. As to the diſpoſition of mines, there is but one general rule, viz. that the ſide towards which one would determine the effect be the weakeſt; but this varies according to circumſtances. The calculation of mines is generally built upon this hypotheſis, That the entonnoir of a mine is the fruſtum of an inverted cone, whoſe altitude is equal to the radius of the excavation of the mine, and the diameter of the whole leſſer baſe is equal to the line of leaſt reſiſtance; and though theſe ſuppoſitions are not quite exact, yet the calculations of mines deduced from them have proved ſucceſsful in practice; for which reaſon this calculation ſhould be followed till a better and more ſimple one be found out. M. De Valliere found that the entonnoir of a mine was a parabaloid, which is a ſolid generated by the rotation of a ſemiparabola about its axis; but as the difference between theſe two is very inſignificant in practice, that of the fruſtum of a cone may be uſed.

(III. 1.) MINE, in natural hiſtory, (§ II. *def.* 1.) implies a deep pit under ground, whence various kinds of minerals are dug out; but is more particularly

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ſo that their new work ſhall make the ſame angle with the clay that the other part of the vein does. Sometimes they ſink a ſhaft down from the ſurface; but it is generally a matter of difficulty to recover a vein when thus loſt.

(4.) **Mines, history of the earliest discoveries of.** The method of diſcovering mines is a matter of ſo much difficulty, that it ſeems ſurpriſing how thoſe who were totally unacquainted with the nature of metals firſt thought of digging them out of the earth. Lucretius ſays, the diſcovery was made by the conflagration of woods, which melted the veins of metal in the earth beneath them; and Ariſtotle tells us, that ſome ſhepherds in Spain having ſet fire to the woods, the earth was thus heated to ſuch a degree, that the ſilver near the ſurface of it melted and flowed into a maſs; and that in a ſhort time the metallic maſs was diſcovered by the rending of the earth in the time of an earthquake. The ſame ſtory is told by Strabo, who aſcribes the diſcovery of the mines of Andaluſia to this accident. The diſcovery of gold has been aſcribed to Mercury, Cadmus, Thoas of Thrace, Piſeus K. of Italy, Cæacus, and other fabulous heroes; but Æſchylus attributes the diſcovery of all the metals to Prometheus. The braſs and copper mines in Cyprus were firſt diſcovered by Cinyras, the ſon of Agriopas; and Heſiod aſcribes the diſcovery of the iron mines of Crete to the Cretan Dactyli Idæi. The extraction of lead or tin from its ore, in the iſland of Caſſiteris, according to ſeveral ancient authors, was diſcovered by Midacritus. Moſes, however, aſcribes the invention of braſs and iron, or at leaſt of the methods of working them, to Tubal-Cain, before the flood. In later times, mines have been often diſcovered by accident; as in ſea-cliffs, among broken craggy rocks, by the waſhing of the tides or floods, alſo by irruptions and torrents of water iſſuing out of hills and mountains, and ſometimes by the wearing of high roads.

(5.) **Mines, methods of discovering.** Mr Price mentions, among other methods by which mines have been diſcovered, one by fiery coruſcations, *ignes fatui*, or falling ſtars, and ſays, "The tinners generally ſearch with uncommon eagerneſs the ground over which theſe jack-a-lanterns have appeared." But this mode of judging of mines has now loſt all credit. Mines are now moſt commonly diſcovered by inveſtigating the nature of ſuch veins, ores, and ſtones, as ſeem moſt likely to turn to account: but there is a particular ſagacity, or habit of judging from particular ſigns, which can be acquired only by long practice. Mines, eſpecially thoſe of copper, may alſo be diſcovered by the harſh and diſagreeable taſte of the waters which iſſue from them; though this only happens when the ore lies above the level of the water; for it does not ſeem likely that the taſte of the ore could *aſcend*, unleſs we were to ſuppoſe a pond or lake of water ſtanding above it. The preſence of copper in any water is eaſily diſcovered by immerging in it a bit of poliſhed iron, which will thus inſtantly be turned of a copper colour, by the precipitation of the metal upon it. A candle, or piece of tallow, put into water of this kind, will in a ſhort time be tinged green. Another, and ſtill more wonderful method of diſcovering mines, is ſaid to be by the *virgula divinatoria*, or *divining rod*; which, however incredible the ſtories related concerning it may be, is ſtill relied on by ſome, and among others by Mr Price. It is not known who was the inventor of this method; but Agricola ſuppoſes that it took its riſe from the magicians, who pretended to diſcover mines by enchantment. No mention is made of it, however, before the 11th century, ſince which time it has been in frequent uſe; and the Corpuſcular Philoſophy has even been called in to account for it. It is ſaid to be performed in conſequence of a certain unaccountable *attraction* which the metals have for rods of *nut* or other *fruit trees*. But the account given by Price, which he had from a Mr Cookworthy of Plymouth, who is ſaid to have had the firſt information concerning this rod from one Captain Ribera, a deſerter from the Spaniſh ſervice in Q. Anne's reign, and afterwards captain commandant in the garriſon of Plymouth, is ſo very incredible, not to add, unintelligible and unphiloſophical, that we think it unneceſſary to quote it; and ſhall therefore leave it to be inveſtigated from Mr Price's work, by ſuch of our readers (if any ſuch there be) as have faith in the obſolete and occult ſciences of Aſtrology, Enchantment, and Magic.—Another, and very ancient mode of diſcovering mines, but extremely difficult and precarious, is that called *ſhoding*; that is, tracing them by looſe ſtones, fragments, or *ſhodes*, which may have been ſeparated and carried off to a conſiderable diſtance from the vein, and are found by chance in running waters, on the ſurface of the ground, or a little under. "When the tinners (ſays Mr Price) meet with a looſe ſingle ſtone of tin ore, either in a valley, or in ploughing or hedging, though at 100 fathoms diſtance from the vein it came from, thoſe who are accuſtomed to this work will not fail to find it out. They conſider, that a metallic ſtone muſt originally have appertained to ſome vein, from which it was ſevered and caſt at a diſtance by ſome violent means. The deluge, they ſuppoſe, moved moſt of the looſe earthy coat of the globe, and in many places waſhed it off from the upper towards the lower grounds, with ſuch a force, that moſt of the backs or lodes of veins which protruded themſelves above the faſt were hurried downwards with the maſs: whence the ſkill in this part of their buſineſs lies much in directing their meaſures according to the ſituation of the ſurface." Afterwards, however, our author complains, that this art of *ſhoding*, as he calls it, is in a great meaſure loſt. The following account of a method of finding ſilver mines, by Alonzo Barba, ſeems to be ſimilar to that of ſhoding: "The veins of metal (ſays he) are ſometimes found by great ſtones above ground; and if the veins be covered, they hunt them out after this manner; viz. taking in their hands a ſort of mattock, which has a ſteel point at one end to dig with, and a blunt head at the other, wherewith to break ſtones, they go to the hollows of the mountains, where the current of rain water deſcends, or to ſome other part of the ſkirts of the mountains, and there obſerve what ſtones they meet with, breaking in pieces thoſe that ſeem to have any metal in them; whereof they find many times both middling ſort of ſtones and ſmall ones alſo of metal. Then they conſider the ſituation of that place, and whence theſe ſtones can tumble, which of neceſſity muſt be from higher ground, and follow the tract of them up the hill as long as they can find any of them," &c. Another way (ſays Mr Price) of diſcovering lodes, is by working drifts acroſs the *country*, as we call it, that is, from N. to S. and *vice verſa*. I tried the experiment in an adventure under my management, where I drove all open at graſs about two feet in the ſhelf, very much like a level to convey water upon a mill wheel: by ſo doing I was ſure of cutting all lodes in my way; and did accordingly diſcover five courſes, one of which has produced above 180 tons of copper ore, but the others were never wrought upon. This method of diſcovering lodes is equally cheap and certain; for 100 fathoms in ſhallow ground may be driven at 50s. expenſe." In that kind of ground called by our author *feaſible*, and which he explains by the phraſe *tender-ſtanding*, he tells us, that "a very effectual, proving, and conſequential way is, by driving an adit from the loweſt ground, either N. or S. whereby there is a certainty to cut all lodes at 20, 30, or 40 fathoms deep, if the level admits of it. In driving adits or levels acroſs, N. or S. to unwater mines already found, there are many freſh veins diſcovered, which frequently prove better than thoſe they were driving to."

(6.) **Mines, necessary considerations after discovering.** After the mine is found, the next thing to be conſidered is, whether it may be dug to advantage. To determine this, we are duty to weigh the nature of the place, and its ſituation, as to wood, water, carriage, healthineſs, and the like; and compare the reſult with the richneſs of the ore, the charge of digging, ſtamping, waſhing, and ſmelting. The form and ſituation of the ſpot ſhould be well conſidered. A mine muſt either happen, 1. In a mountain; 2. In a hill; 3. In a valley; or, 4. In a flat. But mountains and hills are dug with much greater eaſe and convenience, chiefly becauſe the drains and burrows, that is, the adits or avenues, may be here readily cut, both to drain the water, and to form gangways for bringing out the lead, &c. In all the four caſes, we are to look out for the veins which the rains or other accidental thing may have laid bare; and if ſuch a vein be found, it may often be proper to open the mine at that place, eſpecially if the vein prove tolerably large and rich; otherwiſe the moſt commodious place for ſituation is to be choſen for the purpoſe, viz. neither on a flat, nor on the tops of mountains, but on the ſides. The beſt ſituation for a mine is a mountainous, woody, wholeſome ſpot, of a ſafe eaſy aſcent, and near a navigable river. The places abounding with mines are generally healthy, as ſtanding high, and everywhere expoſed to the air; yet ſome places where mines are found prove poiſonous, and can upon no account be dug, though ever ſo rich: the way of examining a ſuſpected place of this kind, is to make experiments upon brutes, by expoſing them to the effluvia, to diſcover their effects. Devonſhire and Cornwall, where there are many mines of copper and tin, are very mountainous; which gives an opportunity to make adits or ſubterraneous drains to ſome valley at a diſtance, by which to carry off the water from the mine, which otherwiſe would prevent them from getting the ore. Theſe adits are ſometimes carried a mile or two, and dug at an expenſe of from 2000l. to 4000l. eſpecially where the ground is rocky; and yet they find this cheaper than to draw up the water out of the mine quite to the top, when the water runs in plenty, and the mine is deep. Sometimes, indeed, they cannot find a level near enough, to which an adit may be carried from the very bottom of the mine; yet they find it worth while to make an adit at half the height to which the water is to be raiſed, thereby ſaving half the expenſe. The late Mr Coſtar, conſidering, that ſometimes from ſmall ſtreams, and ſometimes from little ſprings or collections of rain water, one might have a good deal of water above ground, though not a ſufficient quantity to turn an overſhot wheel, thought, that if a ſufficient fall might be had, this collection of water might be made uſeful in raiſing the water in a mine to the adit, where it may be carried off. But now the moſt general method of draining mines is by the ſteam engine. See **Steam Engine.**

(1.) * *To* **Mine.** *v. n.* [from the noun.] To dig mines or burrows; to form any hollows underground.—

The *mining* coneys ſhroud in rocky cells. *Wotton.*

—Of this various matter the terreſtrial globe conſiſts, from its ſurface to the greateſt depth we ever dig or *mine*. *Woodward's Nat. Hiſtory.*

(2.) * *To* **Mine.** *v. a.* To ſap; to ruin by mines; to deſtroy by ſlow degrees, or ſecret means.—

While rank corruption, *mining* all within,
Infects unſeen. *Shakeſp. Hamlet.*

—They *mined* the walls, laid the powder, and rammed the mouth; but the citizens made a countermine. *Hayward.*

MINEGAHANE, a town of Ireland, in the county of Kerry, Munſter.

(1.) MINEHEAD, an ancient borough of Somerſetſhire, with a harbour in the Briſtol channel, near Dunſter caſtle, much frequented by paſſengers to and from Ireland. It was incorporated by Q. Elizabeth, with great privileges, on condition of keeping the quay in repair; but its trade falling off, the quay was neglected, and the privileges were loſt. A ſtatute was obtained in the reign of William III. for recovering the port, and keeping it in repair; and the quay was rebuilt. In purſuance of another act, a new head was built to the quay, the beach cleared, &c. ſo that the biggeſt ſhip may enter, and ride ſafe in the harbour. The town contains about 500 houſes and 2000 ſouls. It was formerly governed by a portreve, and now by two conſtables choſen annually at a court-leet, held by the lord of the manor. Its chief trade is with Ireland, whence about 40 veſſels uſed to come hither in a year with wool; and about 4000 chaldrons of coals are yearly imported at this place, Watchet and Porlock, from South Wales; which lies directly oppoſite to it, about 7 leagues over, the common breadth of this channel all the way from Holmes to the Land's End. Here are ſeveral rich merchants, who trade alſo to Virginia and the Weſt Indies; as well as to Barneſtaple and Briſtol. Herrings, which come up the Severn in great ſhoals about Michaelmas, are caught, cured, and 3 or 4000 barrels annually ſhipped off for the Mediterranean, &c. The market is on Wed. and fair on Whitſun-Wedneſday. Minehead is 31 miles N. of Exeter, and 161 W. by S. of London. Lon. 3. 34. W. Lat. 51. 12. N.

(2.) **Minehead**, a cape of Ireland, on the SW. coaſt of Waterford; 4 miles SW. of Helwick.

(3.) **Minehead**, a townſhip of Vermont, in Eſſex county, on the Connecticut.

MINELLIUS, John, an eminent Dutch grammarian, critic, and philologiſt, born at Rotterdam about 1625. He publiſhed editions of Virgil, Ovid, and ſeveral other Latin claſſics, with notes. He died in 1683.

MINEO, a town and lake of Sicily, in the valley of Noto.

* **MINER.** *n. ſ.* [*mineur*, Fr. from *mine.*] 1. One that digs for metals.—

By me kings palaces are puſh'd to ground,
And *miners* cruſh'd beneath their mines are found. *Dryden.*

2. One who makes military mines.—As the bombardeer levels his miſchief at cities, the *miner* buſies himſelf in ruining private houſes. *Tatler.*

MINERÆ. See Mineralogy, *Part* I.

(1.) * **MINERAL.** *adj.* Conſiſting of foſſile bodies.—By experience upon bodies in any mine, a man may conjecture at the metallick or *mineral* ingredients of any maſs found there. *Woodward.*

(2.) * **Mineral.** *n. ſ.* [*minerale*, Latin.] Foſſile body; matter dug out of mines. All metals are minerals, but all minerals are not metals. Minerals, in the reſtrained ſenſe, are bodies that may be melted, but not malleated.—

She did confeſs, ſhe had
For you a mortal *mineral*. *Shak. Cymbeline.*

—The *minerals* of the kingdom, of lead, iron, copper, and tin, are of great value. *Bacon to Vill.*

Part hidden veins digg'd up, nor hath this earth
Entrails unlike, of *mineral* and ſtone. *Milton.*

—*Minerals*; nitre with vitriol; common ſalt with alum; and ſulphur with vitriol. *Woodward.*

(3.) **Mineral**, in natural hiſtory, is uſed in general for all foſſile bodies, whether ſimple or compound, dug out of a mine; whence the denomination. See Mine, N° III. § 1—6; and Mineralogy.

(4.) **Mineral Acids.** See Acids; and Chemistry, *Index.*

(5.) **Mineral Alkali.** See Alkali, § 2—4; and Chemistry, *Index.*

(6.) **Mineral Pitch.** See Chemistry, *Index.*

(7.) **Mineral Springs**, or } (7.) **Mineral Waters.** } All waters naturally impregnated with any heterogeneous matter which they have diſſolved within the earth may be called *mineral waters*, in the moſt extenſive meaning of that name; which might therefore comprehend almoſt all thoſe that flow within or upon the earth, for almoſt all theſe contain ſome earth or ſelenites. But waters containing only earth or ſelenites are not generally called *mineral*, but *hard* or *crude waters*. Theſe, when chemically analyſed, ſhow no marks of an acid or alkali, nor of any volatile, ſulphureous, or metallic matters. Waters which contain calcareous earth change the colour of ſyrup of violets to a green; and thoſe that contain ſelenites, being mixed with a ſolution of mercury in nitrous acid, form a turbith mineral; and when a fixed alkali is added, they are rendered turbid, and a white ſediment is precipitated. Theſe waters do not diſſolve ſoap well. Any water which produces theſe effects is a hard, earthy, or ſelenitic water. The waters impregnated with gaſes are alſo hard. Although the waters of the ſea and ſaline ſprings be not generally enumerated amongſt mineral waters, they might nevertheleſs be juſtly conſidered as ſuch; for beſides earthy and ſelenitic matters, they alſo contain a large quantity of mineral ſalts. But *mineral waters*, properly ſo called, are thoſe in which gas, or ſulphureous, ſaline, or metallic ſubſtances, are diſcovered by chemical trials. As many of theſe are employed ſucceſſively in medicine, they are alſo called *medicinal waters*. Mineral waters receive their peculiar principles by paſſing through earths containing ſalts, or other mineral ſubſtances in a ſtate of decompoſition. Some of theſe are valuable for the quantity of uſeful ſalts which they contain, particularly of common ſalt (ſee Salt); and others for their medicinal qualities. "All waters (ſays Dr Thomſon, in his *Syſtem of Chem.* Vol. III. p. 376.) which are diſtinguiſhed from common water by a peculiar ſmell, taſte, colour, &c. and which, in conſequence of theſe properties, cannot be applied to the purpoſes of domeſtic economy, have been called *mineral waters*. Theſe occur in different parts of the earth, conſtituting wells, ſprings, or fountains; ſometimes of the temperature of the ſoil through which they paſs, ſometimes warm, and in ſome caſes even at the boiling temperature."

(8.) **Mineral waters, attempts made to analyse.** "Mineral ſprings (continues the Dr) attracted the attention of mankind in the earlieſt ages, and were reſorted to by thoſe who laboured under diſeaſes, and employed as a medicine. But it was not till towards the end of the 17th century that any attempt was made to detect the ingredients of which theſe waters were compoſed, or to diſcover the ſubſtances to which they owed their properties. Mr Boyle may be conſidered as the firſt who pointed out the method of examining water. He firſt aſcertained the exiſtence of air in it, and pointed out a number of teſts, by which conjectures might be made concerning the ſaline bodies which the water held in ſolution. In 1665, Dominic Du Clos attempted to examine the mineral waters in France. He employed almoſt all the re-agents recommended by Boyle, and added ſeveral of his own. In 1680, Hierne publiſhed a ſet of experiments on the mineral waters of Sweden. Soon after, various improvements were introduced by Regis, Didier, Burlet, and Homberg; and in 1726, Boulduc pointed out a method of precipitating ſeveral of the ſaline contents of water by alcohol. But it was not till after the diſcovery of carbonic acid by Dr Black, that any conſiderable progreſs was made in aſcertaining the compoſition of mineral waters. That ſubtile acid, which is ſo often contained, and which ſerves as a ſolvent to many of the earths and even metallic bodies, had thwarted all the attempts of former chemiſts to detect the compoſition of theſe liquids. Since the diſcovery of this acid, the analyſis of mineral waters has advanced with great rapidity, in conſequence, chiefly, of the admirable diſſertation on the ſubject publiſhed by **Bergman** in 1778. Since that period, much has been done by Gioanetti, Black, Klaproth, Weſtrum, Fourcroy, Brezé, Kirwan, and many other eminent chemiſts: ſo that, notwithſtanding the difficulty of the ſubject, ſcarcely any branch of chemiſtry has made greater progreſs, or is farther advanced, than the knowledge of mineral waters."

(9.) **Mineral waters, causes of the heat of.** See Spring, N° 9; and Burning, N° 25.

(10.) **Mineral waters, divisions of.** "In the greateſt part of mineral waters (ſays Dr Thomſon) there is uſually ſome ſubſtance preſent (ſee § 14, 15.), which, from its greater proportion or affinity, ſtamps the character of the water, and gives it thoſe properties by which it is moſt readily diſtinguiſhed. This ſubſtance claims the greateſt attention, while the other bodies, which enter in a ſmaller proportion, may vary, or even be abſent, without producing any ſenſible change. This circumſtance enables us to divide mineral waters into claſſes, diſtinguiſhed by the peculiar ſubſtance which predominates in each. Accordingly, they have been divided into 4 claſſes: namely, 1. *Acidulous*; 2. *Chalybeate*; 3. *Hepatic*; 4. *Saline*."

I. **Mineral waters, acidulous,** "contain a conſiderable proportion of carbonic acid. They are eaſily diſtinguiſhed by their acid taſte, and by their ſparkling like Champaign wine, when poured into a glaſs. They contain almoſt conſtantly ſome common ſalt, and in general alſo a greater or ſmaller proportion of earthy carbonate."

II. **Mineral waters, chalybeate,** "contain a portion of iron, and are eaſily diſtinguiſhed by their property of ſtriking a black with the tincture of nut-galls. The iron is uſually held in ſolution by carbonic acid. It very often happens that this acid is in exceſs; in which caſe, the waters are not only chalybeate, but acidulous. This is the caſe with the waters of Spa and Pyrmont. In ſome inſtances the iron is in the ſtate of a ſulphat. The waters holding the ſulphat of iron cannot well be applied to medicinal uſes: they may be readily diſtinguiſhed by their property of continuing to ſtrike a black with tincture of nut-galls, even after being boiled or filtered; whereas boiling decompoſes the carbonat of iron, and cauſes its baſe to precipitate."

III. **Mineral waters, hepatic.** "The hepatic or ſulphureous waters are thoſe which contain ſulphurated hydrogen gas. Theſe are eaſily diſtinguiſhed by the odour of that gas, which they exhale, and by their property of blackening ſilver and lead. The nature of theſe waters long puzzled chemiſts. Though they often depoſit ſulphur ſpontaneouſly, yet no ſulphur could be artificially ſeparated from them. The ſecret was at laſt diſcovered by Bergman. Theſe waters are of two kinds: in the firſt, the ſulphurated hydrogen is uncombined; in the 2d, it is united to lime or an alkali. They are frequently alſo impregnated with carbonic acid, and uſually contain ſome muriats or ſulphats."

IV. **Mineral waters, saline,** "contain only ſalts in ſolution, without iron or carbonic acid in exceſs. They may be diſtinguiſhed into 4 different orders: Thoſe of the 1ſt order contain ſalts whoſe baſe is lime, and generally either the carbonat or ſulphat. They are named *hard* waters, and have but a ſlight diſagreeable taſte. The 2d are thoſe in which common ſalt predominates. They are readily recognized by their ſalt taſte, and uſually contain ſome magneſian and calcareous ſalts. Waters of the 3d order contain ſulphat of magneſia. They have a bitter taſte, and are purgative. Thoſe of the 4th order are alkaline, containing carbonat of ſoda. They are eaſily diſtinguiſhed by their property of tinging vegetable blues green."

(11.) **Mineral waters, general rules for examining.** When a mineral water is to be examined, the following rules ſhould be obſerved: 1. Experiments ought to be made near the ſpring, if poſſible. 2. The ſituation of the ſpring, the nature of the ſoil, and the neighbouring riſing grounds, ought to be examined. 3. Its ſenſible qualities, as its ſmell, taſte, colour, are to be obſerved. 4. Its ſpecific gravity and heat are to be aſcertained by the hydroſtatical balance and the thermometer. For greater certainty, let the neck of a wet bladder be tied to the neck of a bottle containing ſome of this water. By ſhaking the water, any gas that it contains will be diſengaged, and will ſwell the bladder. If the neck of the bladder be then tied with a ſtring above the bottle, and be cut below this ſtring, ſo as to ſeparate the bladder from the bottle, the quantity and nature of the contained gas may be further examined. 5. Obſerve the changes ſpontaneouſly produced upon the water in cloſe and in open veſſels, and with different degrees of heat. If by theſe means matter be cryſtallized or depoſited, it muſt be ſet apart for further examination. Theſe experiments will almoſt certainly indicate the nature of the water. We muſt then proceed to the decompoſition of it, either merely by evaporation and diſtillation, or with the addition of other ſubſtances, by which the matters contained in the water may be precipitated.

(12.) **Mineral waters, methods of discovering various substances in.** The following are the principal means by which the various ſubſtances contained in mineral waters may be diſcovered and proved, without decompoſing the water by evaporation or by diſtillation. If any portion of diſengaged *acid* or *alkali* be contained in water, it may be known by the taſte, by changing the colour of violets or of turnſol, and by adding the preciſe quantity of acid or of alkali that is neceſſary for the ſaturation of the contained diſengaged ſaline matter. *Sulphur*, and *liver of ſulphur*, may be diſcovered in waters by their ſingular ſmell, and by the black colour which theſe ſubſtances give to white metals or to their precipitates, but eſpecially to ſilver. *Vitriolic ſalts with earthy baſes* may be diſcovered, 1. By adding ſome fixed alkali, which decompoſes all theſe ſalts, and precipitates their earthy baſis; and, 2. By adding a ſolution of mercury in nitrous acid, which alſo decompoſes theſe ſalts, and forms a *turbith mineral* with their acid. But for this purpoſe the ſolution ought to have a ſuperabundant quantity of acid; for when perfectly ſaturated, it forms a precipitate with any water; and indeed, all metallic ſolutions in acids are capable of decompoſition by water alone, and ſo much more eaſily as the acid is more perfectly ſaturated with the metal. *Martial vitriol*, or *iron combined with any acid*, or even *with gas*, ſhows itſelf in waters by blackening an infuſion of galls, or by forming a Pruſſian blue with the phlogiſticated alkaline lixivium. The *vitriol of copper*, or copper diſſolved by any acid, may be diſcovered by adding ſome of the volatile ſpirit of ſal ammoniac, which produces a fine blue colour; or by the addition of clean iron, upon the ſurface of which the copper is precipitated in its natural or metallic ſtate. *Glauber's ſalt* is diſcovered by adding a ſolution of mercury in nitrous acid, and forming with it a turbith mineral; or by cryſtallization. *Common ſalt* contained in waters forms, with a ſolution of ſilver in nitrous acid, a white precipitate, or luna cornea. It may alſo be known by its cryſtallization. *Marine ſalt with earthy baſes* produces the ſame effect upon ſolution of ſilver; forming a precipitate when fixed alkali is added. Its acrimony, bitterneſs, and deliqueſcency, diſtinguiſh it. *Vitriolic acid* may be thus diſcovered: The matter to be examined muſt be mixed with any inflammable ſubſtance, and expoſed to a red heat. If it contain but a particle of vitriolic acid, it will be rendered ſenſible by the ſulphur, or by the volatile ſulphureous acid thence produced. Any *metallic ſubſtance*, diſſolved in water by an acid, may be detected by adding ſome of the liquor ſaturated by the colouring matter of Pruſſian blue. This liquor produces no effects upon neutral ſalts with earthy or alkaline baſes, but decompoſes all metallic ſalts: ſo that if no precipitate be formed upon adding ſome of this liquor, we may be certain that the water does not contain any metallic ſalt; but if a precipitate be formed, we may certainly infer that the water contains ſome metallic ſalt. It is neceſſary to uſe no veſſels in theſe experiments but ſuch as are perfectly clean, and rinſed with diſtilled water; to weigh the products very exactly; to make the experiments upon as large quantities of water as is poſſible, eſpecially the evaporations, cryſtallizations, and diſtillations; and to repeat all experiments ſeveral times. The mixtures, from which any precipitates might be expected, ought to be kept ſeveral days, as many of theſe precipitates require that time to appear, or to be entirely depoſited.

(13.) MINERAL WATERS, MORE ACCURATE METHODS OF ANALYSING. "The analyſis of waters (ſays Dr Thomſon), or the art of aſcertaining the different ſubſtances they hold in ſolution, and determining their proportion, is one of the moſt difficult things in chemiſtry. The difficulty ariſes, not only from the diverſity of the bodies in waters, but from the very minute quantities of ſome ingredients. Though many attempts had been made (§ 8.), no general mode was known till Bergman publiſhed his treatiſe in 1778. This admirable tract carried the ſubject to a high degree of perfection. The Bergmannian method has been followed by ſucceeding chemiſts. Mr Kirwan, in 1799, publiſhed an Eſſay on the general Analyſis of Waters, no leſs valuable than that of Bergman, and enriched by numerous experiments. He has given a new method of analyſis, not only ſhorter and eaſier than the Bergmannian, but ſuſceptible of greater accuracy." Dr Thomſon gives an account of this method, of which our room permits us only to quote the outlines. "The different bodies diſſolved and combined in water are diſcovered by the addition of certain ſubſtances to the water, named *teſts*, which occaſion ſome change in the appearance of the water. I. The gaſeous bodies contained in water are obtained by boiling it in a retort, luted to a pneumatic apparatus. II. Carbonic acid, not combined with a baſe, or combined in exceſs, may be detected by the following teſts: 1. Lime water occaſions a precipitate, ſoluble with effervеſcence in muriatic acid. 2. The infuſion of litmus is reddened, but the red gradually diſappears. 3. When boiled, it loſes this property. III. The mineral acids, when uncombined, give the infuſion of litmus a permanent red, though the water be boiled. IV Water containing ſulphurated hydrogen gas is thus diſtinguiſhed: 1. It exhales the peculiar odour of that gas. 2. It reddens the infuſion of litmus fugaciouſly. 3. It blackens paper dipt in ſolution of lead, and precipitates nitrat of ſilver black or brown. V. Alkalies, and alkaline and earthy carbonats, are thus diſtinguiſhed: 1. The infuſion of turmeric is rendered brown. 2. Paper ſtained with Brazil wood is rendered blue. 3. Litmus paper reddened by vinegar is reſtored to its original blue. 4. When theſe changes are fugacious, the alkali is ammonia. VI. Fixed alkalies exiſt in water, which occaſions a precipitate with muriat of magneſia, after being boiled. Volatile alkali may be diſtinguiſhed by the ſmell, or obtained by diſtilling the water gently. VII. Earthy and metallic carbonats are precipitated by boiling the water; but carbonat of magneſia imperfectly. VIII. Iron is diſcovered by, 1. The tincture of nut-galls giving the water a purple or black colour; the gradations of which are diſtinguiſhed by Weſtrum. 2. Pruſſian alkali occaſioning a blue precipitate. IX. Sulphuric acid exiſts in waters, which form a precipitate with, 1. Muriat, nitrat, or acetite of barytes; 2. ditto of Strontian; 3. ditto of lime; 4. nitrat or acetite of lead. Of theſe the moſt powerful is muriat of barytes, which will detect ſulphuric acid uncombined, when it is not the millionth part of the water. X. Muriatic acid is detected by nitrat of ſilver, which occaſions a white cloud in water containing a very minute proportion of it. XI. Boracic acid is detected by acetite of lead, forming a precipitate inſoluble in acetous acid. XII. Barytes is detected by the inſoluble white precipitate it forms with diluted ſulphuric acid. XIII. Lime is detected by oxalic acid, occaſioning a white precipitate in water containing a very minute proportion of it. XIV. Magneſia and alumina are detected, 1. By ammonia precipitating them, if the carbonic acid has been previouſly ſeparated; 2. By lime water precipitating them, if the carbonic and ſulphuric acids be previouſly removed. XV. Silica may be aſcertained by evaporating a portion of the water to dryneſs, and rediſſolving the precipitate in muriatic acid. The ſilica remains undiſſolved.—Such is the method of detecting the ſubſtances in water; but as theſe are almoſt always combined ſo as to form ſalts, Mr Kirwan pointed out teſts to detect theſe. I. 1. SULPHAT of ſoda may be detected by evaporating the water to one half, and adding lime-water, as long as any precipitate appears. 2. Sulphat of lime, by evaporating the water to a few ounces, when a precipitate appears ſoluble in 500 parts of water. 3. Alum may be detected by mixing carbonat of lime with the water, till a precipitate appears. 4. Sulphat of magneſia may be detected by hydroſulphuret of ſtrontian, which occaſions a precipitate with this ſalt and no other. 5. Sulphat of iron is precipitated by alcohol. II. 1. MURIATS of ſoda and potaſs may be detected thus: Separate the ſulphuric acid by alcohol and nitrat of barytes. Decompoſe the earthy nitrats and muriats by ſulphuric acid. Expel the exceſs of muriatic and nitric acids by heat. Separate the ſulphats thus formed by alcohol and barytic water. If it forms a precipitate with acetite of ſilver, it contains muriat of ſoda or potaſs. To aſcertain which, evaporate the liquid to dryneſs; diſſolve the acetite in alcohol. Evaporate to dryneſs; the ſalt will deliqueſce if it be acetite of potaſs, but effloreſce if it be acetite of ſoda. 2. Muriat of barytes may be detected by ſulphuric acid, as it is the only barytic ſalt found in waters. 3. Muriat of lime may be detected, by freeing the water of all ſulphats; evaporating it to a few ounces, mixing it with ſpirit of wine, and adding nitrat of barytes so long as any precipitate appears: filter off the water, evaporate to dryneſs, treat the dry maſs with alcohol: evaporate the alcohol, and diſſolve the reſiduum in water.—Similar proceſſes are laid down, for detecting the muriats of magneſia and alumine, and the alkaline, calcareous, and magneſian nitrats; a table of ſalts incompatible with each other is alſo added, and a whole ſection is allotted to the method of determining the proportion of the ingredients:—for all which, as well as for a number of *minutiæ*, to be obſerved in making ſome of the above analyſes, which our room permits us not to particulariſe, we muſt refer the reader to Dr Thomſon's work, or that of Mr Kirwan.

(14.) MINERAL WATERS, SUBSTANCES DISCOVERED IN. The ſubſtances met with in mineral waters are the following:—1. VITRIOLIC ACID, ſometimes pure, though more frequently joined with iron or copper. In its pure ſtate, it is ofteneſt found near volcanoes, where, in the opinion of Dr Donald Monro, it is moſt probably "diſtilled from mines of vitriol or of pyrites ſtone, decompoſed by ſubterraneous fire." Dr Vandelius, in his work entitled, *De Thermis Agri Patavini*, 1761, mentions a cave near Latera 30 miles from Viterbo, in Italy, where a clear acid water drops from the crevices of the rocks. It has a mild agreeable taſte, and is a pure vitriolic acid much diluted. A ſimilar native vitriolic water is mentioned by Theophilus Griffonius, near Salvena. Varenius mentions a ſpring in Val di Noto in Sicily, the water of which is ſo ſour, that the people uſe it inſtead of vinegar. In ſome waſte coal pits, the water taſtes ſour, and efferveſces with alkalies. Dr Monro mentions acid dews collected in the Eaſt Indies; this acid he ſuppoſes to be the vitriolic. 2. NITROUS and MURIATIC ACIDS are never found in waters pure, but combined with calcareous earths, foſſile alkali, or magneſia. 3. FIXED AIR abounds in all mineral waters, particularly in ſuch as are cold, to which it gives an agreeable acidulous taſte, as well as their power and efficacy. It is very often ſuſpended in waters by iron. Dr Dejean of Leyden, in a letter to Dr Monro in 1777, ſuppoſes it to be the medium by which ſulphur alſo is diſſolved. Many waters in Germany, particularly near the Rhine, are very much impregnated with this acid. 4. VEGETABLE ALKALI was long ſuppoſed to be a production entirely artificial; but M. Margraaf got a true nitre, the baſis of which is the vegetable alkali, from ſome waters at Berlin. M. Monnet ſays, that from the Pohoun ſpaw water he obtained 8 grains of a grey coloured alkaline ſalt from a reſiduum of 12 Paris pints of the water, which he ſaturated with the vitriolic acid; and on diluting, evaporating, and cryſtallizing, he obtained a tartarus vitriolatus. 5. The FOSSIL ALKALI is found in many waters in Hungary, Tripoli, Egypt, &c. It is combined in Seltzer and other acidulous waters, with fixed air, and may be obtained from them pretty pure by ſimple evaporation. In ſome mineral waters near volcanoes, this alkali has been found capable of producing a true Pruſſian blue, on adding a ſolution of ſilver or of green vitriol to the water; of which an example is given by Dr Nicholas Andrea, in the thermal waters of a ſpring in the iſland of Iſchia. 6. VOLATILE ALKALI has been accounted an ingredient in mineral waters; but Dr Hoffman and others have denied this. But ſome waters near great quantities of putrid matter may give tokens of volatile alkali, as was the caſe with Rathbone-plate water, analyſed by the Hon. Henry Cavendiſh. 7. GLAUBER'S SALT is contained in many mineral waters, but the quantity is very ſmall. M. Boulduc, in the *Memoirs of the Academy of Sciences at Paris* for 1724, mentions a ſpring 9 miles from Madrid, which yields a true Glauber's ſalt. It is found in a concreted ſtate about the ſides of the ſpring, reſembling icicles. Dr Andrea mentions a water at Sællia, in Calabria, which is very ſtrongly impregnated with this ſalt. 8. NITRE. In ſome provinces of Bengal, not only the waters, but even the earth, is ſo ſtrongly impregnated with nitre, that the ſurface is covered with a nitrous cruſt reſembling hoar-froſt. Perfect nitre has alſo been found in ſprings in Europe. 9. SEA SALT abounds not only in the waters of the ocean, but in great numbers of ſalt ſprings; and there are few waters ſo pure as not to contain ſome portion of it. 10. AERATED FOSSILE ALKALI is found in Seltzer, and ſimilar waters, but combined with ſuch a quantity of fixed air, that the acrid taſte of the alkali is entirely covered. By evaporating the water, however, the alkali appears in its acrid ſtate. 11. GYPSUM, or SELENITES, is extremely common in mineral waters. It was long ſuppoſed to be a ſimple earth or ſtone, on account of its difficult ſolubility in water, requiring 700 or 800 times its weight of water to diſſolve it artificially. It is not, however, conſidered as medicinal, nor is the internal uſe of it thought ſafe. 12. EPSOM SALT. Bergman and others have reduced all the calcareous purging ſalts in which the vitriolic acid is concerned; but Dr Monro obſerves, that theſe ſalts not only cryſtallize in various modes, but have different degrees of ſolubility in water.—The Eſom ſalt diſſolves in an equal quantity of water; while the calcareous nitres require from 10 to 80 times their weight to diſſolve them. Theſe ſalts, however, are ſeldom met with by themſelves, but uſually mixed with ſea ſalt, iron, earth, ſulphureous matters, &c. Dr Rutty ſays, that a mineral water begins to be laxative when it contains ten grains of this ſalt to a pint, or 80 to a gallon. 13. ALUM was formerly ſuppoſed to be a very common ingredient in mineral waters; but more accurate obſervations have ſhown it to be very rare. Dr Hoffman thinks it is not to be met with in any, but Dr Layard, in the *Philoſ. Tranſ.* Vol. 56, mentions a chalybeate water at Somerſham, from which he got 5 gr. of alum out of 2 lb. of the water. 14. CALCAREUOS NITRE is rarely found in mineral waters, though common in hard waters. Dr Monro ſays, that the only one containing this ingredient, which he ever heard of, is one mentioned by Dr Home, in his treatiſe on bleaching. 15. MURIATIC CALCAREOUS EARTH is likewiſe a rare ingrodient in mineral waters. Bergman ſays, he obtained a ſmall quantity from a ſpring in E. Gothland; and Dr Monro got ſome from a ſalt ſpring at Pitkeathly, near Perth. It is found, as well as, 16. MURIATED MAGNESIA, in ſea water, though the latter is more abundant, but not ſo eaſily obtained in a cryſtalline form. Muriated magneſia is the chief ingredient in the bitter ley remaining after the ſalt is extracted from ſea water, and is much more capable of being cryſtallized than the former. 17, 18. AERATED CALCAREOUS EARTH, and AERATED MAGNESIA, may be diſſolved by fixed air, and often are ſo in mineral waters, as well as iron. They are alſo often found in hard waters. When ſuch waters are boiled, the air evaporates, and the earth falls to the bottom. Hence originates the cruſt upon tea-kettles, the petrefactions upon different ſubſtances immerſed in ſome kinds of water, &c. Hence alſo hard waters become ſoft, by running in channels. 19. *Vitriolated copper* is ſeldom found, except in waters which flow from copper mines. The water impregnated with it is emetic and purgative, and often poiſonous. On dipping clean iron into ſuch water, the copper is inſtantly precipitated in its metallic ſtate, and the iron diſſolved in its ſtead. 20. *Vitriolated iron* is found in conſiderable quantity in ſeveral waters in England, Scotland, and Ireland, as well as in many countries on the continent. Some imagine, that there is a kind of volatile vitriol with which waters are ſometimes impregnated. See a work entitled, *Delle Terme Porretane*, publiſhed at Rome in 1768. 21. VITRIOLATED ZINC has been found native in the earth; and thence has been ſuppoſed to be an ingredient in mineral waters. Dr Rutty and Dr Gmelin ſay, that they have obtained a white vitriol from mineral waters which were alſo impregnated with iron and other ingredients. 22. MURIATED MANGANESE. Waters impregnated with this ſalt are mentioned both by Bergman and Scheele. 23. *Arſenic* has been ſuppoſed to be an ingredient in mineral waters, by Varenius and Dr Baldaſſari. 24. FOSSIL OILS. Almoſt all waters, even thoſe which are accounted pureſt, contain ſome portion of oil, though generally ſo ſmall that it cannot be perceived without evaporating a large quantity of the liquid. A portion of it adheres ſo very obſtinately, that it cannot be fully ſeparated even by filtration. A fine bituminous vapour riſes from the bottom of ſome wells, and pervades the water, taking fire on the application of any flaming ſubſtance, though no oil is obſerved in the water itſelf. Of this kind are the burning wells at Broſely and Wigan in Lancaſhire, and others in different countries.—The cauſe of the inflammation of theſe waters was firſt diſcovered, in 1759, by Mr Thomas Shirly, who cauſed the waters to be drained, and found that the inflammable vapour roſe from the ground at the bottom, where it would take fire, as it did at the ſurface. On applying his hand to the place whence the vapour iſſued, he found the impulſe of it like a ſtrong breath; and felt the ſame ſenſation on applying it to the ſurface of the water. See *Philoſ. Tranſ.* Vol. 26. 25. SULPHUR is a common ingredient in mineral waters, and is known by the ſtrong hepatic ſmell they emit, as well as by their blackening ſilver, &c. Sulphureous waters are often very clear and tranſparent when taken up, but, when kept in open veſſels, depoſit ſulphur in the form of a dirty white powder, and loſe their ſmell. The bottoms of the wells containing ſuch waters, or of the channels in which they run, aſſume a black colour, and a raggy matter is depoſited on ſuch ſubſtances as they run over for ſome time. When theſe are taken up and dried, they appear covered with ſulphur. Some waters contain ſulphur in very conſiderable quantity. From that of Harrowgate it may be ſeparated by filtration; and F. De Tertre, in his *Hiſtoire Naturelle des Antilles*, Vol. 2. tells us, that he found it in Guadaloupe, in a ſulphureous water near the volcano. Dr Monro obtained ſulphur by evaporation, from a mineral water at Caſtle-Leod, in Roſs-ſhire, in Scotland. Dr Brown, in his Travels, informs us, that having cauſed ſome of the pipes which carry off the water from the duke's bath at Baden, in Auſtria, to be opened, he took thence a quantity of fine ſulphur in powder. A ſimilar ſulphur is obtained from the upper part of the pipes which convey the waters of Aix-la-Chapelle. Dr Vandellius, in his treatiſe *de Thermis agri Patavini*, mentions a ſubſtance found in the conduits of the waters of the baths at Aponum, which he calls *cryſtallized ſulphur*, and ſays that it diſſolves in the waters by boiling, recovering afterwards its ſolid form.

(15.) MINERAL WATERS, SUBSTANCES FOUND IN, BY MODERN CHEMISTS. In the laſt ſection we have given a view, in as few words as poſſible, of the ſubſtances diſcovered in mineral waters, before the late improvements in chemiſtry; and have ſtated them in the old chemical language, for the benefit of ſuch readers as may not yet have become acquainted with the new chemical nomenclature. (See CHEMISTRY, *Index*, and Vocab.

cal.) But we would not do juſtice to the preſent improved ſtate of chemiſtry and mineralogy, were we not to add a conciſe view of theſe ſubſtances, as diſcovered and arranged by the lateſt writers on theſe ſubjects. Dr Thomſon, in his *Syſtem of Chemiſtry* (Vol. III. B. ii. Ch. iii. P. 378.), enumerates them as follows:—" The ſubſtances hitherto found in mineral waters amount to about 38, and may be reduced under the 4 following heads: 1. Air in its component parts, oxygen and azotic gas. 2. Acids. 3. Alkalies and earths. 4. Salts. I. 1. AIR is contained in by far the greater number of mineral waters: its proportion does not exceed one 28th of the bulk of the water. 2. *Oxygen gas* was firſt detected in waters by Scheele. Its quantity is uſually inconſiderable, and it is incompatible with ſulphurated hydrogenous gas or iron. 3. *Azotic gas* was firſt detected in Buxton water by Dr Pearſon: Afterwards in Harrowgate waters by Dr Garnet, and in thoſe of Lemington Priors by Mr Lambe. II. The only ACIDS hitherto found in waters, except in combination with a baſe, are the 4 following: carbónic, ſulphureous, boracic, and ſulphurated hydrogenous gas. 1. *Carbonic acid* was firſt diſcovered in Pyrmont water by Dr Brownrigg. It is the moſt common ingredient in mineral waters, 100 cubic inches generally containing from 6 to 40 cubic inches of this acid gas. According to Weſtrum, 100 cubic inches of Pyrmont water contain 187 cubic inches of it, or almoſt double its own bulk. 2. *Sulphureous acid* has been obſerved in ſeveral hot mineral waters in Italy, near volcanoes. 3. The *Boracic acid* has alſo been obſerved in ſome lakes in Italy. 4. Sulphurated hydrogen gas conſtitutes the moſt conſpicuous ingredient in waters named *hepatic* or *ſulphureous*. III. The only ALKALI, which has been obſerved in mineral waters uncombined, is ſoda; and the only earthy bodies are ſilica and lime. 1. Dr Black detected *ſoda* in the hot mineral waters of Geyzer and Rykum in Iceland; but in moſt other caſes it is combined with carbonic acid. 2. *Silica* was firſt obſerved in waters by Bergman: afterwards in thoſe of Geyzer and Rykum by Dr Black: and in thoſe of Carlſbad by Klaproth. Haſſenfratz obſerved it in thoſe of Pougues; and Brezé in thoſe of Pu.—3. *Lime* is ſaid to have been found uncombined in ſome mineral waters; but this is not proved.—IV. The only SALTS found are the following: *Sulphats, nitrats, muriats, carbonats,* and *hydroſulphurets*: 1. SULPHAT of ſoda is not uncommon in ſaline mineral waters. 2. Sulphat of ammonia is found near volcanoes. 3. Sulphat of lime is exceedingly common in water. It was firſt detected by Dr Liſter in 1682. 4. Sulphat of magneſia is almoſt conſtantly an ingredient in thoſe waters which are purgative. 5. Alum is exceedingly rare. 6. Sulphat of iron occurs ſometimes in volcanic mineral waters: 7. But ſulphat of copper is only found in waters which iſſue from copper mines. 8. Nitre has been found in ſome ſprings in Hungary; but is very uncommon. 9. NITRAT of lime was firſt detected in water by Dr Home of Edinburgh, in 1756. 10. Nitrat of magneſia is found in ſome ſprings. 11. MURIAT of potaſs has lately been diſcovered in the mineral ſprings of Uhleäborg in Sweden by Julin. 12. Muriat of ſoda is exceedingly common in mineral waters. 13. Muriat of ammonia is uncommon, but has been found in ſprings in Italy and Siberia. 14. Muriat of barytes is ſtill more uncommon, but has been announced by Bergman. 15, 16. Muriats of lime and magneſia are common ingredients. 17. Muriat of alumina has been obſerved by Dr Withering, but is very uncommon. 18. Muriat of manganeſe was mentioned by Bergman; and has been lately detected by Lambe in the waters of Lemington Priors, but in a very limited proportion. 19. *Carbonat* of potaſs is mentioned by ſeveral chemiſts: if it does occur, it muſt be in a very ſmall proportion. 20. But carbonat of ſoda is the moſt common ingredient, except common ſalt and carbonat of lime. 21. Carbonat of ammonia has been diſcovered, but is uncommon. 22. Carbonat of lime is found in almoſt all waters, and is uſually held in ſolution by an exceſs of acid. 23. Carbonat of magneſia is alſo very common, and is almoſt always accompanied by carbonat of lime. 24. Carbonat of alumina is ſaid to have been found in waters; but has not been aſcertained. 25. But carbonat of iron is not uncommon; it forms the moſt remarkable ingredient in waters called *chalybeate*. 26, 27. The *hydroſulphurets* of lime and of ſoda have been detected in waters called *ſulphureous* or *hepatic*. 28. Borax exiſts in ſome lakes in Perſia and Thibet." (See BORAX, § II.) Beſides the ſubſtances above deſcribed, there is ſometimes found in water a quantity of BITUMEN combined with alkali, and in the ſtate of ſoap. In ſuch waters acids occaſion a coagulation; and the coagulum collected on a filter diſcovers its bituminous nature by its combuſtibility. Water alſo ſometimes contains *extractive matter*, which may be detected by nitrat of ſilver." (P. 401.)

(16.) MINERAL WATERS, TABLE OF THE MOST CELEBRATED, IN EUROPE, EXHIBITING AT ONE VIEW THE NAMES OF THE SPRINGS, THE COUNTRIES IN WHICH THEY ARE FOUND, THE CONTENTS AND QUALITY OF THE WATERS, AND THEIR MEDICINAL VIRTUES.

Abcourt, near St Germains in France. A cold chalybeate water, containing, beſides the iron, a ſmall quantity of foſſil alkali ſaturated with fixed air. Diuretic and purgative. Internally uſed in dropſies, jaundice, and obſtructions of the viſcera; externally in ſcorbutic eruptions, ulcers, &c.

Aberbrothick, in Forfarſhire, Scotland. A cold chalybeate, containing iron diſſolved in fixed air. Diuretic and corroborative. Uſed in indigeſtions, nervous diſorders, &c.

Acton, in Middleſex. Contains Epſom and ſea ſalt. Cold. Strongly purgative, and cauſes a ſoreneſs in the fundament.

Aghaloo, in Tyrone, Ireland. Sulphur, foſſile alkali, and purging ſalt. Cold. Alterative and corroborant. Uſeful in ſcrofulous diſorders, worms, and cutaneous diſeaſes.

Aix-la-Chapelle, in Germany; now in the French empire. Sulphureous and hot. Contain aerated calcareous earth, ſea-ſalt, foſſile alkali, and ſulphur. Diaphoretic, purgative, and diuretic.

Uſed as baths, and taken internally. Uſeful in rheumatiſms, and all diſeaſes proceeding from debility.

Alford, in Somerſetſhire. A purging ſalt along with ſea ſalt. Cold. Strongly purgative.

Antrim, in Ireland. Similar to Barrowdale water, but weaker.

Aſkeron, in Yorkſhire. Contains Epſom ſalt, aerated calcareous earth, and ſulphur. Cold. Diuretic. Uſeful in leproſy, ſcabs, and other cutaneous diſeaſes.

Baden, in Swabia, Germany. Hot and ſulphureous ſprings and baths, reſembling thoſe of Aix-la-Chapelle. See AIX-LA-CHAPELLE and BADEN.

Bagniers, in the late prov. of Bigorre in France. Earth and ſulphur. Hot. The waters uſed in baths, like thoſe of Aix-la-Chapelle. Some of the ſprings purgative, others diuretic.

Bagnigge, in Middleſex, near London. Epſom ſalt and muriated magneſia. Cold. Another ſpring contains iron and fixed air. Strongly purgative, three half pints being a doſe. The chalybeate ſpring alſo proves purgative.

Balaruc, in the depart. of Herault in France. Hot, and containing ſome purging ſalts. Drank as purgatives, and uſed as hot baths. Uſeful in ſcrofulous and cutaneous diſorders.

Balimore, in Worceſterſhire. A fine cold chalybeate, containing iron rendered ſoluble by fixed air, with ſome other ſalt ſuppoſed to be foſſile alkali. Corrobarative; uſeful in obſtructions of the viſcera. Drank from two to three pints in the morning.

Ball, or Baudwell, Lincolnſhire. A cold petrifying water; contains aerated calcareous earth or magneſia. Corroborative and aſtringent. Drank to the quantity of two pints, or two and an half.

Ballycaſtle, in Antrim, Ireland. Chalybeate and ſulphureous. Cold. Reſembles that of Balimore.

Ballynahinch, in Down, Ireland. Iron, fixed air, and ſulphur. Cold. Uſeful in ſcorbutic diſorders and diſeaſes of indigeſtion.

Ballyſpellan, near Kilkenny in Ireland. Iron, fixed air, and probably foſſile alkali. Similar in virtue to that of Balimore.

Bandola, in Italy. Iron, fixed air, foſſile alkali, and a little ſulphur. Cold. Gently laxative, diuretic, and diaphoretic.

Bareges, in the dep. of Up. Pyrenees, in France. Sea-ſalt, foſſile alkali, calcareous earth, ſelenites, ſulphur, and a fine bituminous oil. Hot. Diuretic and diaphoretic. Uſeful in nervous and cutaneous diſorders; in old wounds, and ſome venereal complaints. Uſed as baths, and taken internally to the quantity of a quart or three pints.

Barnet, and North-hall, in Hertfordſhire. Epſom ſalt and aerated calcareous earth. Purgative.

Barrowdale, in Cumberland. A great quantity of ſea ſalt, aerated calcareous earth, and ſome bittern. Cold. Strongly emetic and cathartic. Uſeful in jaundice and dropſy, ſcorbutic diſorders, and chronic obſtructions. Uſed alſo as a bath in cutaneous diſeaſes. Taken in the doſe of a pint, containing about 7½ drams of ſea-ſalt. The virtue reſides chiefly in the aerated calcareous earth.

Bath, in Somerſetſhire. Iron, aerated calcareous earth, ſelenite, Glauber's ſalt, and ſea-ſalt. Hot. Powerfully corroborative; and very uſeful in all kinds of weakneſſes. Uſed as a bath, and taken internally.

Brentwood, in Eſſex. Epſom ſalt, and aerated calcareous earth. Purgative.

Briſtol, in Somerſetſhire. Calcareous earth, ſea-ſalt, Epſom ſalt, Glauber's ſalt, and ſelenites. Hot. Uſed as a bath; and drank from 4 to 8 oz. at a time, to two quarts per day. Uſeful in conſumptions, diabetes, fluor albus, &c.

Bromley, in Kent. Iron and fixed air. Cold. Diuretic and corroborative.

Broughton, in Yorkſhire. Sulphur, ſea-ſalt, Epſom ſalt, and aerated earth. Cold. Similar to Harrowgate.

Buxton, in Derbyſhire. A ſmall quantity of ſea-ſalt, foſſile alkali, Epſom ſalt, and aerated calcareous earth. Hot. Here is alſo a fine cold chalybeate ſpring. Uſeful in gout, rheumatiſm, and other diſorders in which tepid baths are ſerviceable. Uſed as baths, and drank to the quantity of 5 or 6 pints per day.

Carlton, in Nottinghamſhire. Iron diſſolved in fixed air, with a bituminous oil, which gives it the ſmell of horſe dung. Cold. Diuretic and corroborative.

Caroline baths, in Bohemia. See Carlſbad. Iron, fixed air, aerated earth, ſea-ſalt, foſſile alkali, Epſom ſalt, and Glauber's ſalt. Hot. Purgative, and uſed as baths. Uſeful in diſorders of the ſtomach and bowels, ſcrofula, &c.

Carrickfergus, in Antrim, Ireland. Seems, from its bluiſh colour, to contain a very ſmall quantity of copper. Cold. Weakly purgative.

Carrickmore, in Cavan, Ireland. Foſſile alkali, fixed air, and ſome purging ſalt. Cold. Purgative and diuretic.

Caſhmore, in Waterford, Ireland. Green vitriol. Purgative, diuretic, and ſometimes emetic.

Caſtle-Connel, in Limerick, Ireland. Iron diſſolved in fixed air, &c. Cold. Reſembles the German Spaw, and is in conſiderable repute.

Caſtle-Leod, in Roſs-ſhire, Scotland. Aerated earth, ſelenites, Glauber's ſalt, and ſulphur. Cold. Diuretic, diaphoretic, and corroborant; uſeful in cutaneous diſeaſes.

Caſtlemain, in Kerry, Ireland. Iron, ſulphur, and fixed air. Corroborant and diuretic.

Cawley, in Derbyſhire. Epſom ſalt, aerated calcareous earth, and ſulphur. Cold. Gently purgative.

Cawthorp, in Lincolnſhire. Iron, fixed air, and probably foſſile alkali. Cold. Purgative, and corrects acidities.

Chadlington, in Oxfordſhire. Foſſile alkali, ſea-ſalt, and ſulphur. Cold. Purgative.

Chaude Fontaine, in Liege, in the French republic. Aerated earth, foſſile alkali, and fixed air. Hot. Reſembles thoſe of Aix-la-Chapelle and Buxton.

Cheltenham, in Glouceſterſhire. Calcareous earth, iron, Epſom ſalt, and common ſalt. Cold.

Purgative and corroborant; taken in the quantity of from one to 3 or 4 pints. Uſeful in caſes of indigeſtion, ſcurvy, and gravel.

Chippenham, in Wiltſhire. Iron diſſolved in fixed air. Diuretic and corroborative.

Cleves, in France. Iron, fixed air, and other ingredients of Pyrmont water. Diuretic and corroborant.

Clifton, in Oxfordſhire. Foſſile alkali, and aerated calcareous earth or ſelenite. Cold. Gently laxative, and uſed as a bath for cutaneous diſorders.

Cobham, in Surry. Iron, and ſome purging ſalt. Purgative, diuretic, and corroborant.

Codſalwood, in Staffordſhire. Sulphur, fixed air, and aerated earth. Reſembles the Aſkeron water.

Colcheſter, in Eſſex. Epſom ſalt, and aerated calcareous earth. Strongly purgative.

Colurian, in Cornwall. Iron, fixed air, and aerated earth. Corroborative and diuretic.

Cumner, or Cumner, in Berkſhire. Some purging ſalt, and probably aerated earth: the water is of a whitiſh colour. Purgative, in the quantity of 1, 2, or 3 quarts.

Coolauran, in Fermanagh, Ireland. Iron, fixed air, and aerated earth. Diuretic.

Corſtorphin, in Mid-Lothian. Sulphur, ſea-ſalt, clay, and Epſom ſalt. Cold. Diuretic and laxative.

Coventry, in Warwickſhire. Iron, fixed air, and ſome purging ſalt. Purgative, diuretic, and corroborant.

Crickle Spa, in Lancaſhire. Sulphur, ſea-ſalt, and aerated earth. Purgative; reſembling Harrowgate water.

Croft, in Yorkſhire. Aerated earth, vitriolated magneſia, and ſea-ſalt. Purgative; reſembling Aſkeron water.

Croſstown, in Waterford, Ireland. Martial vitriol. Diuretic, purgative, and ſometimes emetic.

Cuſley-houſe, in Lancaſhire. Sulphur, aerated earth, and fixed air. Purgative; reſembling the Aſkeron water.

Das-Wild Bad, Nuremberg, in Germany. Iron, fixed air, and ſome ſaline matter. Corroborant. Uſeful in obſtructions of the viſcera and female complaints.

Dax, in France. Similar to Aix-la-Chapelle. Hot. Uſed as a bath, and drank like the Aix-la-Chapelle waters.

Deddington, in Oxfordſhire. Iron, ſulphur, aerated earth, ſea-ſalt, or foſſile alkali. Alterative, purgative in large quantity, and uſeful in ſcorbutic and cutaneous diſorders.

Derby, in Derbyſhire. Iron diſſolved by fixed air. Corroborant.

Derrindaff, in Cavan, Ireland. Sulphur and purging ſalt. Similar to the Aſkeron water.

Derryinch, in Fermanagh, Ireland. Sulphur and foſſile alkali. Diuretic and diaphoretic.

Derryleſter, in Cavan, Ireland. Similar to Swadlingbar water.

Dog and Duck, in St George's-fields, London. Aerated magneſia, Epſom ſalt, and ſea-ſalt. Cooling and purgative, but apt to bring on or increaſe the fluor albus.

Dortſhill, Staffordſhire. Iron diſſolved in fixed air. Corroborant.

Drig-well, in Cumberland. Similar to Deddington.

Dropping-well, in Yorkſhire. Aerated earth. Aſtringent and corroborant.

Drumas-nave, in Leitrim, Ireland. Sulphur, foſſile alkali, with ſome purging ſalt. Powerfully diuretic and anthelmintic; uſeful in cutaneous and ſcrofulous diſorders.

Drumgoon, in Fermanagh, Ireland. Similar to the former.

Dublin ſalt ſprings, Ireland. Sea-ſalt and Epſom ſalt. Purgative.

Dulwich, in Kent. Sea-ſalt and Epſom ſalt. Purgative and diuretic. Uſeful in nervous caſes, and diſeaſes of debility.

Dunnard, 18 miles from Dublin. Iron diſſolved in fixed air. Diuretic and corroborant.

Dunſe, in Berwickſhire, Scotland. Iron diſſolved in fixed air, with a little ſea-ſalt and bittern. Similar to the former.

Durham, in England. Sulphur, ſea-ſalt, and a little aerated earth. In the middle of the river is a ſalt-ſpring. Similar to the Harrowgate water. That of the ſalt-ſpring uſed as a purgative.

Egra, in Bohemia. Similar to Cheltenham water.

Epſom, in Surry. Vitriolated and muriated magneſia, with a ſmall quantity of aerated calcareous earth. Purgative, and uſeful in waſhing old ſores.

Fairburn, in Roſs-ſhire, Scotland. Sulphur, aerated earth, and Glauber's ſalt. Alterative, and uſeful in cutaneous diſeaſes.

Felſtead, in Eſſex. Similar to Iſlington.

Filah, in Yorkſhire. Sea-ſalt and aerated earth. Powerfully diuretic and purgative.

Frankfort, in Germany. Sulphur and ſea-ſalt. Similar to Harrowgate.

Fraſerburgh, in Aberdeenſhire. A ſtrong chalybeate. Of late preferred even to that of Peterhead.

Gainſborough, in Lincolnſhire. Sulphur, iron, aerated earth, and Epſom ſalt. Diuretic and laxative.

Galway, in Ireland. Similar to Tunbridge water.

Glanmile, in Ireland. Similar to Peterhead water.

Glaſtonbury, in Somerſetſhire. Similar to Clifton water.

Glendy, in Mearns, Scotland. Similar to Peterhead water.

Granſhaw, in Down, Ireland. Iron; ſimilar to the German Spa.

Haigh, in Lancaſhire. Green vitriol, iron diſſolved by fixed air, with ſome aerated earth. Emetic and cathartic.

Hampſtead, in England. Green vitriol, iron diſſolved by fixed air, and a ſmall quantity of aerated earth. Alterative and corroborant. The water is taken from half a pint to ſeveral pints; is better in the morning than in the middle of the day, and in cold than hot weather.

Hanbridge, in Lancaſhire. Similar to Scarborough water, but leſs purgative.

Hanlys, in Shropſhire. Epſom, or rather purging ſalt. Purgative.

Harrowgate, in Yorkſhire. Sulphur, ſea-ſalt, and ſome purging ſalt. Some chalybeate ſprings here alſo. Alterative, purgative, and anthelmintic; uſeful in ſcurvy, ſcrofula, and cutaneous diſeaſes. Uſed externally for ſtrains and paralytic weakneſſes.

Hartfell, in Annandale, Scotland. Green vitriol. Aſtringent and corroborant. Uſeful in all inward diſcharges of blood.

Hartlepool, in Durham. Sulphur, iron diſſolved by fixed air, with ſome purging ſalt. Diuretic and laxative.

Holt, in Wiltſhire. Purging ſalt, with a large quantity of aerated earth. Mildly purgative. Uſeful in old ulcers and cutaneous diſorders.

Ilmington, in Warwickſhire. Aerated foſſile alkali, with ſome iron diſſolved by fixed air. Diuretic and laxative.

Inglewhite, in Lancaſhire. Sulphur, and iron diſſolved by fixed air. Alterative. Uſeful in ſcorbutic and cutaneous diſeaſes.

Joſeph's well, Stock-Common, near Cobham in Surry. A very large proportion of Epſom ſalt, and poſſibly a little ſea-ſalt. Alterative, purgative, and diuretic. Drank to about a quart, it paſſes briſkly without griping: taken in leſs doſes as an alterative, it is a good antiſcorbutic.

Iſlington, near London. Iron diſſolved by fixed air. Corroborant. Uſeful in lowneſs of ſpirits and nervous diſeaſes. Operates by urine, and may be drank in large quantity.

Kanturk, in Cork, Ireland. Similar to Peterhead water.

Kedleſtone, in Derbyſhire. Sulphur, ſea-ſalt, and aerated earth. Similar to Harrowgate; but intolerably fetid.

Kenſington, near London. Similar to Acton water.

Kilbrew, in Meath, Ireland. A large quantity of green vitriol. Emetic and cathartic, in the doſe of half a pint.

Kilburn, near London. Fixed air, hepatic air, Epſom ſalt, Glauber's ſalt; muriated magneſia, ſea-ſalt, aerated earth, and iron.

Killaſher, in Fermanagh, Ireland. Sulphur and foſſile alkali. Alterative and diaphoretic.

Killingſhan valley, in Fermanagh. Similar to Hanlys chalybeate water.

Kilroot, in Antrim, Ireland. Like Borrowdale water, but weaker.

Kinalton, in Notinghamſhire. A purging ſalt.

Kincardine, in the Mearns, Scotland. Similar to the water of Peterhead.

Kingsclift, in Northamptonſhire. Similar to Cheltenham waters.

Kirby, in Weſtmoreland. Iron, fixed air, and probably ſome foſſile alkali. Laxative, and uſeful in correcting acidities.

Knareſborough. See *Dropping well*, above.

Knowſley, in Lancaſhire. Similar to Scarborough water.

Kaka, in Bohemia. Aerated fixed alkali. Operates by inſenſible perſpiration, ſometimes by ſpitting, ſweat, or urine.

Lancaſter, in England. Similar to Tunbridge water.

Latham, in Lancaſter. Similar to the former.

Leamington, in Warwickſhire. Sea-ſalt and aerated calcareous earth. Emetic and cathartic Uſeful in old ſores, and cures mangy dogs.

Leez, in Eſſex. Similar to Iſlington water.

Lincomb, in Somerſetſhire. Aerated iron, foſſil alkali, and a little Epſom ſalt.

Liſbeak, in Fermanagh, Ireland. Sulphur, &c Similar to Swadlinghar water.

Liſdone Vurna, in Clare, Ireland. Foſſile alkal with much iron. Emetic, cathartic, and diuretic.

Llandrindod, in Radnor, South Wales. Thre ſprings; 1. purgative, 2. ſulphureous, and 3 chalybeate. Uſeful in the ſcurvy, leproſy, cutaneous diſorders, &c.

Llangybi, in Caernarvonſhire, N. Wales. Uſefu in diſorders of the eyes, ſcrofula, &c.

Loanſbury, in Yorkſhire. Sulphur, and ſom purging ſalt. Uſed only for waſhing mang dogs and ſcabby horſes.

Maccroomp, in Cork, Ireland. Similar to Ilmington water.

Maherberg, in Kerry, Ireland. Similar to Barrowdale water.

Mallow, in Cork, Ireland. A hot water, ſimila to that of Briſtol.

Malton, in Yorkſhire. Iron and fixed air in conſiderable quantity. Similar to Scarborough water, but ſometimes apt to vomit.

Malvern, in Glouceſterſhire. Iron. Two ſpring Diuretic and cathartic; uſed alſo externally Excellent in diſeaſes of the ſkin; in leproſies, ſcorbutic complaints, ſcrofula, old ſores, &c in inflammations and other diſeaſes of the eyes in the gout and ſtone, in bilious and paralyti caſes, and in female obſtructions: Uſed externally by waſhing the part at the ſpout ſeveral time a-day, and afterwards covering it with cloth dipt in water, and kept conſtantly moiſt; alſ by general bathing.

Markſhall, in Eſſex. Similar to Iſlington.

Matlock, in Derbyſhire. Warm ſprings, of th nature of the Briſtol water, very ſlightly impregnated with iron, but containing a great quantity of aerated earth. They are colder than th Buxton waters.

Maudſley, in Lancaſhire. Sulphur and ſea-ſalt Similar to Harrowgate.

Mechan, in Fermanagh, Ireland. Sulphur an foſſile alkali. Similar to Drumgoon water.

Miller's Spaw, in Lancaſhire. Similar to Tunbridge.

Moffat, in Annandale, Scotland. Sulphur, ſea-ſalt, and earth. Alterant, diuretic, and ſometimes purgative. Is uſed as a bath; and th ſteam of the hot water has been found ſerviceable in relaxing hard tumors and ſtiff joints.

Moreton, in Shropſhire. Similar to Holt water.

Moſs-houſe, in Lancaſhire. Similar to Iſlingto water. Purges ſtrongly.

Mount D'Or, in France. Warm, and ſimilar t the Aix-la-Chapelle waters. Diuretic, purgative, and diaphoretic.

Nevil-Holt, in Leiceſterſhire. Selenite, or aerated earth, and Epſom ſalt. Purgative, diuretic, and diaphoretic. Powerfully anteſeptic in putrid diſeaſes, and excellent in diarrhoea, dyſenteries, &c

New Cartmall, in Lancaſhire. Sea-ſalt and aerated earth. Purgative.

Newnham Regis, in Warwickſhire. Similar to Scarborough water.

Newtondale, in Yorkſhire. Aerated calcareous earth or magneſia. Aſtringent or tonic.

Newton-Stewart, in Tyrone, Ireland. Similar to Tunbridge.

Nezdenice, in Germany. Fixed air, foſſile alkali, iron, and earth. Diuretic, diaphoretic, and tonic.

Nobber, in Ireland. Martial vitriol. Similar to Hartfell.

Normanby, in Yorkſhire. Sulphur, much fixed air, ſome ſea-ſalt, and Epſom ſalt. Similar to Aſkeron water.

Nottington, in Dorſetſhire. Sulphur, foſſile alkali, and earth. Uſeful in cutaneous diſeaſes.

Orſton, in Nottingham. Much fixed air, Epſom and a little ſea-ſalt, with ſome iron. Purgative. It intoxicates by reaſon of the great quantity of air contained in it.

Oulton, in Norfolk. Similar to Iſlington.

Owen Breun, in Cavan, Ireland. Sulphur, Epſom ſalt, and foſſile alkali. Similar to Aſkeron water.

Pancras, near London. Epſom ſalt, and aerated earth. Diuretic and purgative.

Paſſy, near Paris. Similar to Pyrmont water.

Peterhead, in Aberdeenſhire. A ſtrong chalybeate. Similar to Iſlington, but more powerful.

Pettigoe, in Donegal, Ireland. Sulphur and purging ſalt. Similar to Aſkeron water.

Pitkeathly, in Perthſhire. Sea-ſalt, a ſmall quantity of muriated and aerated earth. Gently purgative. Very uſeful in ſcrofulous and ſcorbutic habits.

Plombiers, in Lorraine, France. Saline matter, probably foſſile alkali, with a ſmall portion of oil. Warm. Uſed as a bath, and for waſhing ulcers. Inwardly taken, it cures complaints from acidity, hemorrhagies, &c.

Pontgibault, in Auvergne, France. Foſſile alkali and calcareous earth. Diuretic and laxative.

Pougues, dep. of Neivre, France. Calcareous earth, magneſia, foſſile alkali, ſea-ſalt, earth of alum, and ſilicious earth. Diuretic and laxative.

Pyrmont, in Weſtphalia, Germany. Aerated iron, calcareous earth, magneſia, Epſom ſalt, and common ſalt. Diuretic, diaphoretic, and laxative. Uſeful in caſes where the conſtitution is relaxed; in female complaints, cutaneous diſeaſes, nervous diſorders, gravel and urinary obſtructions; and reckoned one of the beſt reſtoratives in decayed and broken conſtitutions.

Queen-Camel, in Somerſetſhire. Sulphur, ſea-ſalt, foſſile alkali, calcareous earth, and bituminous oil. Uſed in ſcrofulous and cutaneous diſorders.

Richmond, in Surry. Similar to Acton water.

Rippin, in Yorkſhire. Sulphur, ſea-ſalt, and aerated earth. Diaphoretic and alterant.

Road, in Wiltſhire. Sulphur, iron, foſſile alkali, and fixed air. Uſeful in ſcrofula, ſcurvy, and cutaneous diſorders. Acts as a laxative.

St Bartholomew's well, in Cork, Ireland. Foſſile alkali, iron, and fixed air. Similar to Tilbury water.

St Bernard's well, near Edinburgh. Sulphureous volatile acid. Somewhat congenial with Moffat and Harrowgate. In nervous and ſtomachic caſes, analeptic and reſtorative; in ſcorbutic, ſcrofulous, and moſt dropſical caſes, reckoned a ſpecific.

St. Eraſmus's well, in Staffordſhire. Similar to Barrowdale water.

Scarborough, in Yorkſhire. Aerated calcareous earth, Epſom ſalt, ſea ſalt, and iron.

Scollienſis, in Switzerland. Iron, foſſile alkali, and a great quantity of fixed air. Excellent in colic pains, both as a cure and preventive.

Sedlitz, in Bohemia. Epſom ſalt. Strongly purgative.

Seltzer, in Germany. Calcareous earth, magneſia, foſſile alkali, and fixed air. Diuretic. Uſeful in the gravel, rheumatiſm, ſcurvy, ſcrofula, &c.

Sene, or Send, in Wiltſhire. Similar to Iſlington.

Seydſchutz, in Germany. Similar to Seidlitz.

Shadwell, near London. Green vitriol. Emetic and cathartic.

Shapmoor, in Weſtmoreland. Sulphur and purging ſalt. Similar to Aſkeron water.

Shettlewood, in Derbyſhire. Similar to Harrowgate water.

Shipton, in Yorkſhire. Sulphur, ſea ſalt, and purging ſalt. Similar to Harrowgate.

Somerſham, in Huntingdonſhire. Green vitriol, alum, and fixed air. Corroborant and alterative. Uſeful for waſhing foul ulcers and cancers.

Spa, in Liege, in France. Foſſile alkali, iron, aerated earth, Epſom ſalt, and ſea ſalt. Diuretic and purgative. Uſeful in many diſorders. See SPA.

Stanger, in Cumberland. Green vitriol. Emetic and cathartic.

Stenfield, in Lincolnſhire. Similar to Orſton.

Streatham, in Surry. Aerated earth, Epſom ſalt, ſea ſalt, and muriated magneſia. Purgative.

Suchaloza, in Hungary. Similar to Nezdenice.

Sutton bog, in Oxfordſhire. Sulphur, foſſile alkali, and ſea ſalt. Alterative and laxative.

Swadlingbar, in Cavan, Ireland. Sulphur, earth, ſea ſalt, and foſſile alkali. Alterative and diaphoretic.

Swanſey, in Glamorganſhire, N. Wales. Green vitriol. Similar to Shadwell.

Sydenham, in Kent. Similar to Epſom, but weaker.

Tarleton, in Lancaſhire. Similar to Scarborough water.

Tewkſbury, in Glouceſterſhire. Similar to Acton.

Thetford, in Norfolk. Foſſile alkali, fixed air, and iron. Purgative and diuretic.

Thoroton, in Nottinghamſhire. Similar to Orſton.

Thurſk, in Yorkſhire. Similar to Scarborough.

Tibſhelf, in Derbyſhire. Iron diſſolved in fixed air. Similar to Spaw.

Tilbury, in Eſſex. Foſſile alkali. Diuretic and diaphoretic.

Tober-Bony, near Dublin. Foſſile alkali, earth, and bituminous oil. Similar to Tilbury.

Tonſtein, in Cologne. Foſſile alkali. Similar to Seltzer, but more purgative.

Tralee, in Kerry. Similar to Caſtle Connel.

Tunbridge, in Kent. Iron, ſome ſea ſalt, with a little ſelenites and calcareous earth. An excellent chalybeate, useful in all diſeaſes for which the Spaw is recommended.

Vahls, in the late Dauphiny. Foſſil alkali. Diuretic and laxative.

Upminſter, in Eſſex. Sulphur, foſſile alkali, and purging ſalt. Purgative and diuretic.

Walkenſow, in Northamptonſhire. Similar to Iſlington water.

Wardrew, in Northumberland. Sulphur, earth, and ſea-ſalt. Similar to Harrowgate.

Weatherſlack, in Weſtmoreland. Iron, ſea-ſalt, and a ſmall quantity of hepatic gas. Purgative.

Weſt Aſhton, in Wiltſhire. Similar to Iſlington.

Weſtwood, in Derbyſhire. Green vitriol. Similar to Shadewell. Uſed for waſhing ulcers of the legs.

Wexford, in Ireland. Similar to Iſlington.

Whiteacre, in Lancaſhire. Aerated iron and probably calcareous earth. Somewhat aſtringent.

Wiggleſworth, in Yorkſhire. Sulphur, earth, and common ſalt. Emetic in the quantity of two quarts, and ſaid to be cathartic in the quantity of three; a ſingular circumſtance, if true.

Wildungan, in Waldeck, Germany. Similar to Bath waters. Uſeful in ſcorbutic and gouty diſeaſes.

Witham, in Eſſex. Aerated iron, and common ſalt. Diuretic, alterative, and corroborant.

Wirkſworth, in Derbyſhire. Sulphur, purging ſalt, and aerated iron. Uſeful in ſcrofulous and cutaneous diſeaſes.

Zahoravice, in Germany. Similar to Nezdenice water. Much eſteemed in ſcrofulous caſes.

To MINERALISE. See *To* MINERALIZE.

* MINERALIST. *n. ſ.* [from *mineral.*] One ſk led or employed in minerals.—A mine-digger ma meet with a gem or mineral, which he kno not what to make of, till he ſhows it a jewell or a *mineraliſt. Boyle.*—The metals and mine which are lodged in the perpendicular interv do ſtill grow, to ſpeak in the *mineraliſt's* phra or receive additional increaſe. *Woodward*

MINERALIZATION, *n. ſ.* that proceſs nature, by which any ſubſtance, animal or v getable, is converted into a mineral. Thus plant pieces of wood, ſhells of fiſhes, &c. are turn into ſtone by petrifying waters. And M. Chapta and other modern chemiſts inſiſt, that PIT CO is originally a maſs of vegetable ſubſtances min ralized. See CHEMISTRY, *Index.*

To MINERALIZE, *v. a.* To change into mineral ſubſtance; or to combine with a differe metal or mineral.

MINERALIZER, *n. ſ.* in mineralogy, a mine ſubſtance, which, when combined with an anim or vegetable ſubſtance, or with a ſalt or metal, m neralizes it; and, as the followers of Stahl's h potheſis ſuppoſed, deprives a metal of its phlog ton. The moſt common mineralizers, upon th theory, were ſulphur, arſenic, and fixed air.

MINERALOGICAL, *adj.* Of or belonging t mineralogy.

* MINERALOGIST. *n. ſ.* [*mineralogie*, French from *mineral* and λογος.] One who diſcourſes on minerals.—Many authors deny it, and the exacteſ *mineralogiſts* have rejected it. *Brown's Vulg. Err*

MINERALOGY.

DEFINITIONS *of* MINERALOGY.

* MINERALOGY. *n. ſ.* [from *mineral* and λογος.] The doctrine of minerals.

MINERALOGY is more properly defined that ſcience which teaches the properties of MINERAL BODIES, or the SOLID MATERIALS of which the GLOBE conſiſts, and by which we learn how to characteriſe, diſtinguiſh, and claſs them into a proper order.

HISTORY *of the* SCIENCE, *and* PLAN *of this* TREATISE.

MINERALOGY is undoubtedly a very ancient ſcience, but by no means "*coeval* with the *world*," as ſome Encyclopædiſts affirm. The productions of the ſurface of the earth would naturally attract the attention of mankind, and be carried to at leaſt as high a degree of cultivation and improvement as could be affected by wooden inſtruments, for many ages before they would think of penetrating into the bowels of the earth in ſearch of its hidden treaſures, of which they could not poſſibly form any idea. Accordingly the firſt metallurgiſt, and conſequently the firſt mineralogiſt, recorded in any authentic hiſtory, is TUBAL CAIN, the 8th in lineal deſcent from Adam: and if we conſider the longevity of the ante-diluvians, the world muſt have been at leaſt 14, or 1500 years old, when he became the "inſtructor of every artificer in braſs and iron; or in other words, the *inventor* of METALLURGY and MINERALOGY, a ſhort tim after the invention of *Muſic* and *Upholſtery* by hi two brothers. See Gen. iv. 20—22.

Theſe ſciences as well as precious ſtones, how ever, of various kinds, were well known amon the Jews and Egyptians, in the time of MOSES and even the moſt rude and barbarous nations ap pear to have had ſome knowledge of the ores an manufactures of various metals. See MINE, § III, 4

"MINERALOGY (ſays Mr ROBERT JAMESON F. A. S. and F. R. M. S. in his *Outline of the Min ralogy of the Shetland Iſlands*,) has engaged the a tention of mankind for a long ſeries of ages; bu like moſt other ſciences, has riſen to importanc within a few years only. To the labours of th great WERNER, we are indebted for the moſt ac curate diſcrimination of foſſils by their externa characters; theſe, conjoined with the admirabl analyſis of KLAPROTH, have enabled us to di tinguiſh foſſils with certainty, and underſtand th diſcriptions of authors, which could not be don from the vague and contradictory characters Linnæus, and the other Swediſh mineralogiſt The want of a true ſyſtematic arrangement is ſti to be regretted; for although mineralogiſts, fro the days of THEOPHRASTUS to the preſent tim have been engaged in this attempt, their ſucce has been but limited. In botany and zoolog regular methods have been propoſed and follow ed: in mineralogy, however, the greater numb of writers, excepting LINNÆUS and Dr WALKE ha have diſcarded the idea of a ſtrict natural hiſtory arrangement, from its ſuppoſed inſufficiency. This opinion is extremely falſe and injudicious: for it will be found upon examination, that foſſils are very ſuſceptible of arrangement into Claſs, Order, Genus, and Species: thus giving a fixity and regularity to our information, of which we can have little idea, from many of the methods that have been propoſed.—Notwithſtanding this want of accurate and judicious arrangement, mineralogy has been cultivated in ſome countries with the greateſt ardour and enthuſiaſm. But it is to the Germans we owe almoſt the whole of what is known, not only with regard to Mineralogy, but Geology, and that moſt important concern, the working and œconomy of mines. In Germany many governments have eſtabliſhed ſchools and boards of mines. This ſcience is now beginning to extend its influence: all nations are now following the example of the Germans: even Portugal has lately ſent intelligent men to collect the information of mining countries. England, yielding to none in other arts and ſciences, is far behind in this reſpect. Ireland, through the labours of its brighteſt ornament, Mr Kirwan, and ſome other diſtinguiſhed patriots, is now enriched with a collection, which will diffuſe a taſte for ſuch inveſtigations, and will certainly prove of much conſequence to a country, whoſe mineral hiſtory is unknown. Scotland, though rich in mines, and preſenting a great number of mineral appearances, is but little known. The method of working is, in many places, ill underſtood, and the ignorance of the generality of mine-maſters, ſhows the neceſſity of mineralogical ſchools. The utility of ſuch inſtitutions cannot be doubted: a regular and ſyſtematic courſe of any art or ſcience is always to be deſired. In the art of mining, how many inſtances have we of uſeleſs expenſe, and ruin entailed upon fooliſh projectors, from want of proper information?"

Dr Thomson, in the 3d book of his *Syſtem of Chemiſtry*, which is expreſsly allotted to the ſubject of Mineralogy, (Vol. III, p. 413.) remarks, that though minerals "muſt at all times have attracted the attention of mankind,"—"it is only very lately, that the method of aſcertaining the component parts of theſe ſubſtances was diſcovered, or that it was poſſible to deſcribe them ſo as to be intelligible to others. From the ancients no information of any conſequence on theſe topics is to be expected. The whole science of Mineralogy has been *created* ſince the year 1770, and is at preſent advancing towards perfection with aſtoniſhing rapidity. New minerals are every day deſcribed and analyſed, collections are everywhere forming, and travels of diſcovery are ſucceeding each other without intermiſſion. The fruit of theſe labours has been the diſcovery of no leſs than 6 *new earths*, and 8 *new metals*; (ſee Metallurgy, *Part* I, *Sect.* I.) beſides a vaſt number of uſeful minerals, which had been formerly unknown or diſregarded.

"The ſcience of Mineralogy includes under it 3 different topics: 1. The method of *deſcribing* minerals with ſo much accuracy and preciſion, that they may be eaſily diſtinguiſhed from each. 2. A *Syſtematic Arrangement* of minerals. 3. The art of *Analyſing* minerals. Theſe 3 topics ſhall form the ſubjects of 3 chapters," in the 2d part of this treatiſe.

As Mineralogy is nearly allied to Chemistry, or rather is properly a very important branch of it, the beſt way of ſtudying mineralogy, therefore, is by applying chemiſtry to it; and not contenting ourſelves merely with inſpecting the outſides of bodies, but decompounding them according to the rules of chemiſtry. This method has been brought to great perfection by Mr Pott of Berlin, and after him by M. Cronstedt of Sweden.

To obtain this end, chemical experiments in the large way are doubtleſs neceſſary; but, as a great deal of the mineral kingdom has already been examined in this manner, we do not need to repeat all thoſe experiments in their whole extent, unleſs ſome new and particular phenomena ſhould appear in thoſe things we are examining; elſe the tediouſneſs of thoſe proceſſes might diſcourage ſome from going farther, and take up much of the time of others that might be better employed. An eaſier way may therefore be adopted, which even for the moſt part is ſufficient, and which, though made in miniature, is as ſcientifical as the common manner of proceeding in the laboratories, ſince it imitates that, and is founded upon the ſame principles. This conſiſts in making the experiments upon a piece of charcoal with the concentrated flame of a candle or lamp directed by a blow-pipe. The heat occaſioned by this is very intenſe; and the mineral bodies may here be burnt, calcined, melted, and ſcorified, &c. as well as in any great works.

For a deſcription of the blow-pipe, the method of uſing it, the proper fluxes to be employed, and the different ſubjects of examination to which that inſtrument is adapted, ſee Blow-Pipe and Flux, v. 1; where theſe particulars are conciſely detailed. It will be proper here, however, to reſume thoſe details at greater length, from Engerstrom's *Treatiſe on the Blow-Pipe*, and Magellan's *Deſcription of Pocket Laboratories*, &c. ſubjoined to the tranſlation of Cronstedt's *Mineralogy*, 2d edit. London: after which we ſhall exhibit a ſcientific arrangement of the mineral kingdom, according to the moſt modern ſyſtem.

PART I.

EXPERIMENTAL MINERALOGY; WITH A DESCRIPTION OF THE NECESSARY APPARATUS.

Chap. I. *Of* Experiments *upon* Earths *and* Stones.

When any of theſe ſubſtances are to be tried, we muſt not begin immediately with the blow-pipe; till ſome preliminary experiments be made, by which thoſe in the fire may afterwards be directed. For inſtance, a ſtone is not always homogeneous, or of the ſame kind throughout, although it may appear to be ſo. A magnifying glaſs is therefore neceſſary to diſcover the heterogeneous particles, if there be any; and theſe ought to be ſeparated, and every part tried by itſelf, that the effects of two different things, examined together, may not be attributed to one alone. This might happen with ſome of the finer micæ, which are now and then found mixed with ſmall particles of quartz, ſcarcely to be perceived by the eye. The TRAPP (in German *ſchwartzſtein*) is alſo ſometimes mixed with very fine particles of felt ſpar *(ſpatum ſcintillans)* or of calcareous ſpar, &c.

After this experiment, the hardneſs of the ſtone muſt be tried with ſteel. The flint and garnets are known to ſtrike fire with ſteel; but there are alſo other ſtones, which are ſo hard as likewiſe to ſtrike fire. There is a kind of trapp of that hardneſs, in which no particles of felt ſpar are to be ſeen. Coloured glaſſes reſemble true gems; but as they are very ſoft in proportion to theſe, they are eaſily diſcovered by the file. The common quartz cryſtals are harder than coloured glaſſes, but ſofter than gems. The loadſtone diſcovers the preſence of iron, when it is not mixed in too ſmall a quantity in the ſtone, and often before the ſtone is roaſted. Some kinds of hæmatites, and particularly the cœruleſcens, greatly reſemble ſome other iron ores; but this is diſtinguiſhed from them by a red colour when pounded, the others giving a blackiſh powder.

The management of the BLOW-PIPE is deſcribed under that article; but a few particulars muſt be here added.

The candle ought to be ſnuffed often, but ſo that the top of the wick may retain ſome fat in it, becauſe the flame is not hot enough when the wick is almoſt burnt to aſhes; but only the top muſt be ſnuffed off, becauſe a low wick gives too ſmall a flame. The blue flame is the hotteſt; this ought, therefore, to be forced out when a great heat is required; and only the point of the flame muſt be directed upon the ſubject which is to be eſſayed. M. Magellan recommends, as moſt cleanly and convenient, that the candle be made of wax, and that the wick ſhould be thicker than ordinary. Its upper end muſt be bended towards the matter intended to be heated, and the ſtream of air muſt be directed along the ſurface of the bended part, ſo as not abſolutely to touch it.

The piece of charcoal made uſe of in theſe experiments muſt not be apt to crack. If this ſhould happen, it muſt gradually be heated until it does not crack any more, before any aſſay is made upon it. If this be not attended to, but the aſſay made immediately with a ſtrong flame, ſmall pieces of it will ſplit off in the face and eyes of the aſſayer, and often throw along with them the matter that was to be aſſayed. Charcoal which is too much burnt conſumes too quick during the experiment, leaving ſmall holes in it, wherein the matter to be tried may be loſt; and charcoal that is burnt too little, catches flame from the candle, burning by itſelf like a piece of wood, which likewiſe hinders the proceſs.

Of the ſubſtance to be aſſayed, only a ſmall piece muſt be broken off, not bigger than that the flame of the candle may be able to act upon it at once, if required; which is ſometimes neceſſary, as when the matter requires to be made red-hot throughout, the piece ought to be broken as thin as poſſible, at leaſt the edges; the fire having then more influence upon the ſubject, and the experiment being more quickly made.

Some mineral bodies are very difficult to be kept ſteady upon the charcoal during the experiment, before they are made red-hot; becauſe, a ſoon as the flame begins to act upon them, they ſplit aſunder with violence, and are diſperſed. Such often are thoſe which are of a ſoft conſiſtence or a particular figure, and which preſerv the ſame figure in however minute particles they are broken; for inſtance, the calcareous ſpar, the ſparry gypſum, ſparry fluor, white ſparry lead ore, the potters ore, the teſſellated mock lead o blende, &c. and all the common fluors which have no determinate figure. Theſe not being ſ compact as common hard ſtones, when the flam is immediately urged upon them, the heat force into their clefts or pores, and cauſes this violen expanſion and diſperſion. Many clays are likewiſe apt to crack in the fire, which is moſtl owing to the humidity, of which they always retain a portion.

The only way to prevent this inconvenience i to heat the body as ſlowly as poſſible. Firſt hea that place of the charcoal where the piece is intended to be put, and afterwards lay it thereon a little crackling will then enſue, but commonl of no great conſequence. The flame is then t be blown very ſlowly towards it, in the beginnin not directly upon, but ſomewhat above it, and ſ approaching nearer and nearer with the flame, until it become red hot. This will do for the mo part; but there are nevertheleſs ſome, which, notwithſtanding all theſe precautions, it is almoſt impoſſible to keep on the charcoal. Thus the fluor are generally the moſt difficult; and as one o their principal characters is diſcovered by thei effects in the fire *per ſe*, they ought neceſſarily t be tried that way. For this purpoſe, it is be to make a little hole in the charcoal to put th fluor in, and then to put another piece of charcoal as a covering upon this, leaving only a ſmal opening for the flame to enter. As this ſtone wi nevertheleſs ſplit and fly about, a larger piec thereof muſt be taken, in order to have ſomethin of it left. But if the experiment is to be mad upon a ſtone whoſe effects one does not want t ſee in the fire *per ſe*, but rather with fluxes, then piece of it ought to be forced down into melte borax, when always ſome part of it will remain i the borax, notwithſtanding the greateſt part ma ſometimes fly away by cracking.

1. *Of* SUBSTANCES *to be* TRIED *in the* FIRE *pe ſe*. As the ſtones undergo great alterations whe expoſed to the fire by themſelves, whereby ſom of their characteriſtics, and often the principal are diſcovered, they ought firſt to be tried tha way. The following are generally the reſults o this experiment.

CALCAREOUS EARTH OR STONE, when pure does not melt by itſelf, but becomes white an friable, ſo as to break freely between the fingers and, if ſuffered to cool, and then mixed with water, it becomes hot, like quicklime. As in theſ experiments only very ſmall pieces are uſed, thi laſt effect is beſt diſcovered by putting the pro on the outſide of the hand, with a drop of wate to it, when inſtantly a very quick heat is felt o the ſkin. When the calcareous ſubſtance is mixe with the vitriolic acid, as in gypſum, or with a clay, as in marl, it commonly melts by itſelf, yet with more or leſs difficulty in proportion to the differences of the mixtures. Gypſum produces generally a white, and marl a grey, glaſs or ſlag. When there is any iron in it, as a white iron ore, it becomes dark, and ſometimes quite black, &c.

The SILICEÆ never melt alone, but become generally more brittle after being burnt. Such of them as are coloured become colourleſs, and the former when it does not ariſe from any contained metal; for inſtance, the topazes, amethyſts, &c. ſome of the precious ſtones, however, excepted: and ſuch as are mixed with iron grow dark in the fire, as ſome of the jaſpers, &c.

GARNETS melt always into a black ſlag, and ſometimes ſo eaſily that they may be brought into a round globule upon the charcoal.

The ARGILLACEÆ, when pure, never melt, but become white and hard. The ſoap-rock is eaſily cut with the knife, but being burnt it cuts glaſs, and would ſtrike fire with ſteel, if as large a piece as is neceſſary for that purpoſe could be tried in this way. The ſoap-rocks are ſometimes found of a dark brown, and nearly black colour, but nevertheleſs become quite white in the fire. But care muſt be taken not to urge the flame from the top of the wick, there being for the moſt part a ſooty ſmoke, which will darken all that it touches; and, if this is not obſerved, a miſtake in the experiment may happen. But if it is mixed with iron, as it ſometimes is, it does not ſo eaſily part with its dark colour. The argillaceæ, when mixed with lime, melt by themſelves. When mixed with iron, as in the boles, they grow dark or black; and if the iron is not in too great a quantity, they melt alone into a dark ſlag: the ſame happens when they are mixed with iron and the vitriolic acid, as in the common clay, &c.

MICA and ASBESTOS become ſomewhat hard and brittle in the fire, and are more or leſs refractory, though they give ſome marks of fuſibility.

The FLUORS diſcover one of their chief characteriſtics by giving a light like phoſphorus in the dark, when they are ſlowly heated; but loſe this property, as well as their colour, as ſoon as they are made red hot. They commonly melt in the fire into a white opaque ſlag, though ſome of them not very eaſily.

Some ſorts of the ZEOLITES melt eaſily, and foam in the fire, ſometimes nearly as much as borax, and become a frothy ſlag, &c.

Many of thoſe mineral bodies which are impregnated with iron, as the BOLES, and ſome of the white iron ores, &c. as well as ſome of the other iron ores, viz. the bloodſtone, are not attracted by the loadſtone before they have been thoroughly roaſted, &c.

2. *Of* SUBSTANCES *heated with* FLUXES. After the minerals have been tried in the fire by themſelves, they ought to be heated with fluxes, to diſcover if they can be melted or not, with ſome other phenomena attending this operation. For this purpoſe, three different kinds of ſalts are uſed as fluxes, viz. ſal ſodæ, borax, and ſal fuſibile microcoſmicum. See FLUX, § V. ii.

The SAL SODÆ is, however, not much uſed in theſe ſmall experiments, its effects upon the charcoal rendering it, for the moſt part, unfit for it; becauſe, as ſoon as the flame begins to act upon it, it melts inſtantly, and is almoſt wholly abſorbed by the charcoal. When this ſalt is employed to make any experiment, a very little quantity is wanted at once, viz. about the cubical contents of an 8th part of an inch. This is laid upon the charcoal, and the flame blown on it with the blowpipe; but as this ſalt commonly is in form of a powder, it is neceſſary to go on very gently, that the force of the flame may not diſperſe the minute particles of the ſalt. As ſoon as it begins to melt, it runs along on the charcoal, almoſt like melted tallow; and when cold, it is a glaſſy matter, of an opaque dull colour, ſpread on the coal. The moment it is melted, the matter which is to be tried ought to be put into it, as otherwiſe the greateſt part of the ſalt will be ſoaked into the charcoal, and too little of it left for the intended purpoſe. The flame ought then to be directed on the matter itſelf; and if the ſalt ſpreads too much about, leaving the proof almoſt alone, it may be brought to it again by blowing the flame on its extremities, and directing it towards the ſubject of the experiment. In the aſſays made with this ſalt, we may find whether the mineral bodies which are melted with it have been diſſolved by it or not; but we cannot tell with any certainty whether this is done haſtily and with force, or gently and ſlow; nor whether a leſs or a greater part of the matter has been diſſolved: neither can it be well diſtinguiſhed if the matter has imparted any weak tincture to the ſlag; becauſe this ſalt always bubbles upon the charcoal during the experiment, nor is it clear when cool; ſo that ſcarcely any colour, except a very deep one, can be diſcovered, although it may ſometimes be coloured by the matter that has been tried.

In the following liſts, the articles marked † effervesce very little; thoſe marked ‡ not at all; thoſe marked * require a larger quantity of the flux and a longer continuance of heat than the reſt; thoſe marked ‖ are more difficultly diſſolved than the others.

The following earths are entirely *ſoluble* in ſal ſodæ with effervеſcence: agate; chalcedony; carnelian; Turkey ſtone†; fluor mineralis†; onyx; opal; quartz; common flint; ponderous ſpar. The following are *diviſible* in it, with or without effervеſcence, but not entirely ſoluble: Amianthus; aſbeſtos; baſaltes; chryſolite‡; granate‡; horn-blende; jaſper; marl-ſtone; mica; the mineral of alum from Tolfa; petroſilex; aluminous ſlate and roof ſlate from Helſingia; emeralds; ſteatites; common flint; ſchorl; talc; trapp; tripoli; tourmalin. And the following are neither fuſible nor diviſible in it: Diamond; hyacinth; ruby; ſapphire; topaz.

The other two ſalts, viz. BORAX and the SAL MICROCOSMICUM, are very well adapted to theſe experiments, becauſe they may by the flame be brought to a clear uncoloured and tranſparent glaſs; and as they have no attraction to the charcoal, they keep themſelves always upon it in a round globular form. The ſal fuſibile microcoſmicum is very ſcarce; it is made of urine. See CHEMISTRY, § 1242.

The following earths are ſoluble in borax, with more or leſs *efferveſcence:* Fluor mineralis†; marl; mica†; the mineral of alum from Tolfa; aluminous ſlate and roof ſlate from Helſingia†; ponderous ſpar; ſchorl; talc†; tourmalin. And the following *without* efferveſcence: Agate; diamond; amianthus; aſbeſtus; baſaltes; chalcedony; cornelian; chryſolite; Turkey ſtone; granate; hyacinth*; jaſper; lapis ponderoſus; onyx; opal; petroſilex; quartz*; ruby; ſapphire; common flint*; ſteatites; trapp; trippel, or tripoli; topaz; zeolite; hydrophanes.

In the *microcoſmic ſalt* (ſee CHEMISTRY, *Index*), the following are ſoluble, with more or leſs efferveſcence: Baſaltes†; Turkey ſtone‡; fluor mineralis†; marl; mica; the mineral of alum from Tolfa; ſchiſtus aluminaris, ſchiſtus tegularis, from Helſingia†; ſchorl; ſpathum ponderoſum; tourmalin†; lapis ponderoſus. And the following without viſible efferveſcence: Agate; diamond; amianthus; aſbeſtus; chalcedony; carnelian; chryſolite; granate; hyacinth; jaſper; onyx‖; opal; petroſilex; quartz‖; ruby; ſapphire; common flint‖; emerald; talc; topaz; trapp; trippel; zeolite; horn-blende; hydrophanes; lithomarga; ſteatites.

Calcareous earth, ponderous ſpar, gypſum, and other additaments, often aſſiſt the ſolution, both in the microcoſmic ſalt and in borax. To obſerve the efferveſcence properly, the matter added to the flux ſhould be in the form of a ſmall particle rather than in fine powder; becauſe in this laſt there is always air between the particles, which, being afterwards driven off by the heat, afford the appearance of a kind of efferveſcence.

The quantity of theſe two ſalts required for an experiment is almoſt the ſame as the *ſal ſodæ*; but as the former are cryſtallized, and conſequently include a great deal of water, particularly the borax, their bulk is conſiderably reduced when melted, and therefore a little more of them may be taken.

Both theſe ſalts, eſpecially the borax, when expoſed to the flame of the blow-pipe, bubble very much, and foam, before they melt to a clear glaſs, which for the moſt part depends on the water they contain. And as this would hinder the aſſayer from making due obſervations on the phenomena of the experiment, the ſalt which is to be uſed muſt firſt be brought to a clear glaſs, before it can ſerve as a flux; it muſt therefore be kept in the fire until it become ſo tranſparent that the cracks in the charcoal may be ſeen through it. This done, whatſoever is to be tried is put to it, and the fire continued.

For the aſſays made with any of theſe two fluxes on mineral bodies, no larger pieces muſt be taken than that altogether they may keep a globular form upon the charcoal; as it may then be better diſtinguiſhed in what manner the flux acts upon the matter during the experiment. If this be not obſerved, the flux, communicating itſelf with every point of the ſurface of the mineral body, ſpreads all over it, and keeps the form of this laſt, which commonly is flat, and thus hinders the operator from obſerving all the phenomena. Beſides, the flux being in too ſmall a quantity, i proportion to the body to be tried, will be to weak to act with all its force upon it. The be proportion therefore is about a 3d part of the mineral to the flux; and as the quantity of the flu above mentioned makes a globe of a due ſize, regard to the greateſt heat that is poſſible to procure in theſe experiments, ſo the ſize of the mineral muſt be a 3d part leſs here than when it i to be tried in the fire by itſelf. Sal ſodæ is no of much uſe in theſe experiments; nor has it an particular qualities, in preference to the two la mentioned ſalts, except that it diſſolves the zeolites eaſier.

The microcoſmic ſalt ſhows almoſt the ſam effects in the fire as the borax, only differing fron it in a very few circumſtances; of which one o the principal is, that when melted with manganeſe, it becomes of a crimſon hue, inſtead of a jacinth colour, which borax takes. This ſalt is however, from its ſcarcity, ſtill very little in uſe borax being commonly employed. Whenever mineral body is melted with any of theſe two ſalts it is eaſily ſeen, Whether it quickly diſſolves; i which caſe an efferveſcence ariſes, that laſts til the whole be diſſolved: Whether the ſolution b ſlowly performed; in which caſe few and ſmal bubbles only riſe from the matter: or, Whethe it can be diſſolved at all; becauſe, if not, it is obſerved only to turn round in the flux, without the leaſt bubble, and the edges look as ſharp as before.

To illuſtrate farther theſe experiments, we ſhall give a few examples of the effects of borax upon the mineral bodies. The *calcareous* ſubſtances, and all thoſe ſtones which contain lime, diſſolve readily and with efferveſcence in the borax. The efferveſcence is the more violent, the greater the portion of the lime contained in the ſtone. This cauſe, however, is not the only one in the gypſum, becauſe both the conſtituents o this readily mix with the borax, and therefore a greater efferveſcence ariſes in melting gypſum with the borax than lime alone. The *ſiliceæ* do no diſſolve, ſome few excepted, which contain a quantity of iron. The *argillaceæ*, when pure, are not acted upon by the borax; but when mixe with ſome heterogeneous bodies, they are diſſolved, though very ſlowly; ſuch are the ſtone marro common clay, &c. The *granates*, *zeolites*, a *trapp*, diſſolve but ſlowly. The *fluors*, *aſbeſtin* *micaceæ*, diſſolve for the moſt part very eaſily Some of theſe bodies melt to a colourleſs tranſparent glaſs with the borax; for inſtance, the ca careous ſubſtances when pure, the fluors, ſome o the zeolites, &c. Others tinge the borax with a green tranſparent colour, viz. the granates, trapp ſome of the argillaceæ, and ſome of the micace and aſbeſtinæ.

Borax can only diſſolve a certain proportion quantity of the mineral. Of the calcareous kin it diſſolves a vaſt quantity; but turns at laſt, whe too much has been added, from a clear tranſpare to a white opaque ſlag. When the quantity of th calcareous matter exceeds but little in proportio the glaſs looks very clear as long as it remain hot; but as ſoon as it begins to cool, a white ha opaque cloud is ſeen to ariſe from the botto which ſpreads over the third, half, or more of the glaſs globe, in proportion to the quantity of calcareous matter; but the glaſs or ſlag is nevertheleſs ſhining, and of a glaſſy texture when broken. If more of this matter be added, the cloud riſes quicker and is more opaque, and ſo by degrees the ſlag becomes quite milk white. It is then not of a ſhining, but rather dry appearance on its ſurface; is very brittle, and of a grained texture when broken.

Chap II. *Of* Experiments *upon* Metals *and* Ores.

In examining Metals and ores, an exact knowledge and nicety of procedure are the more neceſſary, that the metals are often ſo diſguiſed in their ores, as to be very difficultly known by their external appearance, and liable ſometimes to be miſtaken one for the other: Some of the cobalt ores, for inſtance, reſemble much the *pyrites arſenicalis*; there are alſo ſome iron and lead ores, which are very like one another, &c.

As the ores generally conſiſt of metals mineralized with ſulphur or arſenic, or ſometimes both, they ought firſt to be expoſed to the fire by themſelves, not only to determine with which of theſe they are mineralized, but alſo to ſet them free from thoſe volatile mineralizing bodies: This ſerves inſtead of calcination, by which they are prepared for further aſſays.

Whenever any metal or fuſible ore is to be tried, a little concavity muſt be made in that part of the charcoal where the matter is to be put; to prevent it from rolling off.

When an ore is to be tried, a ſmall bit is laid upon the charcoal, and the flame blown on it ſlowly. Then the ſulphur or arſenic begins to part from it in form of ſmoke; theſe are eaſily diſtinguiſhed by their ſmell; that of ſulphur being ſufficiently known, and the arſenic ſmelling like garlick. The flame ought to be blown very gently as long as any ſmoke is ſeen to part from the ore; but after that, the heat muſt be augmented by degrees, to make the calcination as perfect as poſſible. If the heat be applied very ſtrongly from the beginning upon an ore that contains much ſulphur or arſenic, the ore will preſently melt, and yet loſe very little of its mineraliſing bodies, thus rendering the calcination very imperfect. It is, however, impoſſible to calcine the ores in this manner to the utmoſt perfection, which is eaſily ſeen in melting down a calcined potter's ore with borax, as it will bubble upon the coal, which depends on the ſulphur ſtill left, the vitriolic acid of this uniting with the borax, and cauſing this motion. However, lead in its metallic form, melted in this manner, bubbles upon the charcoal, if any ſulphur remains in it. But as the lead, as well as ſome of the other metals, may raiſe bubbles upon the charcoal although they are quite free from the ſulphur, only by the flames being forced too violently on it, theſe phenomena ought not to be confounded with each other.

The ores being thus calcined, the metals contained in them may be diſcovered, either by being melted alone or with fluxes; when they ſhow themſelves either in their pure metallic ſtate, or by tinging the ſlag with a colour peculiar to each of them. In theſe experiments it is not to be expected, that the quantity of metal contained in the ore ſhould be exactly determined; this muſt be done in larger laboratories. This cannot, however, be looked upon as any defect, ſince it is ſufficient for a mineralogiſt to find out what ſort of metal is contained in the ore. There is another and a more real defect in the miniature laboratories, viz. that ſome ores was not at all capable of being tried by ſo ſmall an apparatus; for inſtance, the gold ore called *pyrites aureus*, which conſiſts of gold, iron, and ſulphur. The greateſt quantity of gold which this ore contains is about one ounce, or one ounce and an half, out of 100 pounds of the ore, the reſt being iron and ſulphur: and as only a very ſmall bit is allowed for theſe experiments, the gold contained therein can hardly be diſcerned by the eye, even if it could be extracted; but it goes along with the iron in the flag, this laſt metal being in ſo large a quantity in proportion to the other, and both of them having an attraction for each other.

The blendes and black jacks, which are mineral zinc ores, containing zinc, ſulphur, and iron, cannot be tried this way, becauſe they cannot be perfectly calcined, and beſides the zinc flies off when the iron ſcorifies. Neither can thoſe blendes, which contain ſilver or gold mineralized with them, be tried in this manner, which is particularly owing to the imperfect calcination. Nor are the quickſilver ores fit for theſe experiments; the volatility of that metal making it impoſſible to bring it out of the poorer ſort of ores; and the rich ores, which ſweat out the quickſilver when kept cloſe in the hand, not requiring any of theſe aſſays. Theſe ores ought to be aſſayed in larger quantities, and by ſuch other methods as cannot be uſed upon a piece of charcoal. Some of the rich ſilver ores are eaſily tried; e. g. *minera argenti vitrea* or *ſilver glaſs*, which conſiſts only of ſilver and ſulphur. When this ore is expoſed to the flame, it melts inſtantly, and the ſulphur flies off in fumes, leaving the ſilver pure upon the charcoal in a globular form. If this ſilver ſhould be of a dirty appearance, which often is the caſe, it muſt be melted anew with a very little borax; and after it has been kept in fuſion for a minute or two, ſo as to be perfectly melted and red-hot, ſuffered to cool, it may then be taken off the coal, and being laid upon the ſteel plate, the ſilver is ſeparated from the flag by one or two ſtrokes of the hammer. (See Blow-pipe, § 2—5; and *Plate* XXIII.) The braſs ring ought firſt to be placed upon the plate, to hinder the proof from flying off by the violence of the ſtroke, which otherwiſe would happen. The ſilver is then found incloſed in the flag of a gobular form, and quite ſhining, as if it was poliſhed. When a large quantity of ſilver is contained in a lead ore, viz. in a potter's ore, it can likewiſe be diſcovered by the blow-pipe.

Tin may be melted out of the pure tin ores in its metallic ſtate. Some of theſe ores melt very eaſily, and yield their metal, if only expoſed to the fire by themſelves: but others are more refractory; and as theſe melt very ſlowly, the tin, which ſweats out in form of very ſmall globules, is inſtantly burnt to aſhes before theſe globules have time to unite and compoſe a larger globe, which might be ſeen by the eye, and not ſo ſoon deſtroyed by the fire; it is therefore neceſſary to add a little borax to theſe from the beginning, and then to blow the flame violently at the proof. The borax preſerves the metal from being too ſoon calcined, and even contributes to the readier collecting of the ſmall metallic particles, which ſoon form a globule of metallic tin at the bottom of the whole maſs, neareſt to the charcoal. As ſoon as ſo much of the metallic tin is produced as is ſufficient to convince the operator of its preſence, the fire ought to be diſcontinued, though the whole ore be not yet melted; becauſe the whole of this kind of ore can ſeldom or never be reduced into metal by theſe experiments, a great proportion being always calcined: and if the fire is continued too long, even the metal already reduced may be burnt; for tin is very ſoon deprived of its metallic ſtate by fire.

Moſt part of the lead ores may be reduced to a metallic ſtate upon the charcoal. The *mineræ plumbi calciformes*, which are pure, are eaſily melted into lead; but ſuch of them as are mixed with an *ochra ferri*, or any kind of earth, as clay, lime, &c. yield very little lead, and even nothing at all, if the heterogenea are combined in any large quantity. Theſe therefore are not to be tried but in larger laboratories. However, every mineral ſuſpected to contain any metallic ſubſtance may be tried by the blow-pipe, ſo as to give ſufficient proofs whether it contain any or not, by its effects being different from thoſe of the ſtones or earths, &c.

The *mineræ plumbi mineraliſatæ* leave the lead in a metallic form, unleſs too large a quantity of iron is mixed with it. When a teſſellated or ſteel-grained lead ore is expoſed to the flame, its ſulphur, and even the arſenic if there be any, begins to fume, and the ore itſelf to melt into a globular form; the reſt of the ſulphur continues then to fly off, if the flame be blown ſlowly upon the maſs; but, on the contrary, very little of the ſulphur will go off, if the flame be forced violently on it: in this caſe, the lead crackles and diſſipates, throwing about very minute metallic particles. The ſulphur being driven out as much as poſſible, which is known by finding no ſulphureous vapour in ſmelling at the proof, the whole is ſuffered to cool, and then a globule of metallic lead will be left upon the coal. If any iron is contained in the ore, the lead, which is melted out of it, is not of a metallic ſhining, but rather of a black and uneven ſurface: a little borax muſt in this caſe be melted with it, and as ſoon as no bubble is ſeen to riſe any longer from the metal into the borax, the fire muſt be diſcontinued: when the maſs is grown cold, the iron will be found ſcorified with the borax, and the lead left pure and of a ſhining colour. Borax does not ſcorify the lead in theſe ſmall experiments when it is pure; if the flame is forced with violence on it, a bubbling will enſue, reſembling that which is obſerved when borax diſſolves a body melted with it; but when the fire ceaſes, the flag will be pefectly clear and tranſparent, and a quantity of very minute particles of lead will be ſeen ſpread about the borax, which have been torn off from the maſs during the bubbling.

If ſuch a lead ore is rich in ſilver, this laſt metal may likewiſe be diſcovered by this experiment; becauſe, as the lead is volatile, it may b forced off, and the ſilver remain. To effect this the lead, which is melted out of the ore, muſ be kept in conſtant fuſion with a ſlow heat, tha it may be conſumed. This end will be ſoone obtained, and the lead part quicker, if during th fuſion the wind through the blow-pipe be directed immediately, but not forcibly, upon the melted maſs, until it begin to cool; when the fir muſt be directed on it again. The lead, already in a volatiliſing ſtate, will thus be driven out i form of a ſubtile ſmoke; and by thus continuin by turns to melt the maſs, and blow off the lead, until no ſmoke is perceived, the ſilver will at laſ be obtained pure. As only very little bits of ore can be employed in theſe experiments, it will b difficult to extract the ſilver out of a poor ore; for ſome part of it will fly off with the lead, and what might be left is too ſmall to be diſcerned by the eye. The ſilver thus obtained, is eaſily diſtinguiſhed from lead by the following marks; i muſt be red-hot before it can be melted; it cool ſooner than lead; it is brighter and whiter than lead; and harder under the hammer.

The *mineræ cupri calciformes*, at leaſt ſome of them, when not mixed with too much ſtone or earth, are eaſily reduced to copper with any flux; if the copper has not its natural bright colour, it muſt be melted with a little borax, which purifies it. Some of theſe ores do not diſcover their metal, if not immediately melted with borax; the heterogenea contained in them hindering the fuſion before theſe are ſcorified by the flux.

The *grey copper ores*, which only conſiſt of copper and ſulphur, are tried almoſt in the ſame manner. Being expoſed to the flame by themſelves, they inſtantly melt, and part of their ſulphur go off. The copper may afterwards be obtained in two ways: the one, by keeping the proof in fuſion for about a minute, and afterwards ſuffering it to cool; when it will be found to have a dark and uneven appearance externally, but which after being broken diſcovers the metallic copper of a globular form in its centre, ſurrounded with a regulus, which ſtill contains ſome ſulphur and a portion of the metal: the other, by being melted with borax, which laſt way ſometimes make the metal appear ſooner.

The *mineræ cupri pyritaceæ*, containing copper, ſulphur, and iron, may be tried with the blow-pipe if they are not too poor. In theſe experiments the ore ought to be calcined, and after that the iron ſcorified. For this purpoſe, a bit of the ore muſt be expoſed to a ſlow flame, that as much of the ſulphur as poſſible may part from it before it is melted, becauſe the ore commonly melts very ſoon, and then the ſulphur is more difficultly driven off. After being melted, it muſt be kept in fuſion with a ſtrong fire for about a minute, that a great part of the iron may be calcined; and after that, ſome borax muſt be added, which ſcorifies the iron, and turns with it to a black ſlag. If the ore is very rich, metallic copper will be had in the ſlag after the ſcorification. If the ore be of a moderate richneſs, the copper will ſtill retain a little ſulphur, and ſometimes iron: the product will therefore be brittle, and muſt with great caution be ſeparated from the ſlag, that it may not break into pieces; and if this product is afterwards treated in the manner above deſcribed of the grey copper ores, the metal will ſoon be produced. But if the ore is poor, the product after the firſt ſcorification muſt be brought into fuſion, and afterwards melted with ſome freſh borax, to calcine and ſcorify the remaining portion of iron; after which it may be treated as mentioned in the laſt paragraph. The copper will in this caſe be found in a very ſmall globule.

The copper is not eaſily ſcorified with this apparatus, when it is melted with borax, unleſs it has firſt been expoſed to the fire by itſelf to be calcined. When only a little of this metal is diſſolved, it inſtantly tinges the ſlag of a reddiſh brown colour, and moſtly opaque; but as ſoon as this ſlag is kept in fuſion for a little, it becomes quite green and tranſparent: and thus the preſence of the copper may be diſcovered by the colour, when it is concealed in heterogeneous bodies, ſo as not to be diſcovered by any other experiment. If metallic copper is melted with borax by a ſlow fire, and only for a very little time, the ſlag becomes of a fine tranſparent blue or violet colour, inclining more or leſs to green: but this colour is not entirely owing to the copper, becauſe the ſame colour is to be had in the ſame manner from iron; and thoſe glaſſes, which are coloured with either of theſe metals, ſoon loſe their colour if expoſed to a ſtrong fire, and become quite clear. Beſides, if this glaſs, tinged blue with the copper, is again melted with more of this metal, it becomes of a good green colour, which remains long unchanged in the fire.

The IRON ORES, when pure, can never be melted *per ſe*, by the blow-pipe alone; nor do they yield their metal when melted with fluxes; becauſe they require too ſtrong a heat to be brought into fuſion; and both the ore and the metal are very ſoon calcined. This eaſy calcination is alſo the reaſon why the fluxes readily ſcorify this ore, and even the metal itſelf. The iron is more eaſily ſcorified than the copper. The iron is, however, diſcovered without much difficulty, although it were mixed but in a very ſmall quantity with heterogeneous bodies. The ores are all attracted by the loadſtone, ſome without any previous calcination, and others without being roaſted. When a clay is mixed with a little iron, it commonly melts by itſelf in the fire; but if iron is contained in a limeſtone, it does not promote the fuſion, but gives the ſtone a dark and ſometimes a deep black colour, which is always the character of iron. A *minera ferri calciformis pura cryſtalliſata* is commonly of a red colour: This being expoſed to the flame, becomes quite black; and is then readily attracted by the loadſtone, which it was not before. Beſides theſe ſigns, iron is diſcovered by tinging the ſlag of a green tranſparent colour, inclining to brown, when only a little of the metal is ſcorified; but as ſoon as any large quantity thereof is diſſolved in the ſlag, this becomes firſt a blackiſh brown, and afterwards quite black and opaque.

BISMUTH is known by its communicating a yellowiſh brown colour to borax; and arſenic by its volatility and garlick ſmell.

ANTIMONY, both in form of regulus and ore, is wholly volatile in the fire when it is not mixed with any other metal except arſenic; and is known by its particular ſmell, eaſier to be diſtinguiſhed than deſcribed. When the ore of antimony is melted upon the charcoal, it bubles conſtantly during its volatiliſing.

ZINC ORES are not eaſily tried upon charcoal, but the regulus of zinc expoſed to the fire upon it burns with a beautiful blue flame, and forms itſelf almoſt inſtantly into white flowers, called *flowers of zinc*.

COBALT is remarkable for giving to the glaſs a blue colour, which is the ZAFFRE or SMALT. To produce this, a piece of cobalt ore muſt be calcined in the fire, and afterwards melted with borax. As ſoon as the glaſs, during the fuſion, from being clear, grows opaque, it is a ſign that it is tinged a little; the fire is then to be diſcontinued, and the operator muſt take hold, with the nippers, of a little of the glaſs, whilſt yet hot, and draw it out ſlowly in the beginning, but afterwards very quick, before it cools, whereby a thread of the coloured glaſs is procured, more or leſs thick, wherein the colour may eaſier be ſeen than in a globular form. This thread melts eaſily, if only put in the flame of the candle without the help of the blow-pipe. If this glaſs be melted again with more of the cobalt, and kept in fuſion for a while, the colour becomes very deep; and thus the colour may be varied at pleaſure. When the cobalt ore is pure, or contains but little iron, a cobalt regulus is almoſt inſtantly produced in the borax during the fuſion; but when it is mixed with a quantity of iron, this laſt metal ought firſt to be ſeparated, which is eaſily performed, as it ſcorifies ſooner than the cobalt; therefore, as long as the ſlag retains any brown or black colour, it muſt be ſeparated, and melted again with freſh borax, until it ſhows the blue colour.

NICKEL is very ſeldom to be had; and as its ores are ſeldom free from mixtures of other metals, it is very difficultly tried with the blow-pipe. However, when mixed with iron and cobalt, it is eaſily freed from theſe heterogeneous metals, and reduced to a pure nickel regulus by ſcorification with borax, becauſe both the iron and cobalt ſooner ſcorify than the nickel. The regulus or nickel itſelf is of a green colour when calcined: it requires a pretty ſtrong fire before it melts, and tinges the borax with a hyacinth colour. MANGANESE gives the ſame colour to borax; but its other qualities are quite different, ſo as not to be confounded with the nickel.

From the preceding explanations, and thoſe given under the article BLOW-PIPE, any gentleman will be able, in an eaſy manner, to amuſe himſelf in diſcovering the properties of thoſe productions of the mineral kingdom; or more uſefully to employ himſelf by finding out what ſorts of ſtones, earths, ores, &c. there are on his eſtate, and to what economical purpoſes they may be employed. The ſcientific mineraliſt may, by examining into the properties and effects of the mineral bodies, diſcover the natural relation theſe bodies ſtand in to each other, and thereby furniſh himſelf with materials for eſtabliſhing a mineral ſyſtem, founded on natural and rational principles, and this in his own ſtudy, without being obliged to have recourſe to great laboratories, crucibles, furnaces, &c. which is attended with much trouble, and is the reaſon why ſo few can have an opportunity of gratifying their deſire of knowledge in this part of natural hiſtory. It is very neceſſary not to uſe any other fluxes on the charcoal than ſuch as have no attraction to it; if they, at the ſame time, be clear and tranſparent, when melted, as the borax and the microcoſmic ſalt, it is ſtill better: however, the tranſparency and opacity are of no great conſequence, if a ſubſtance be aſſayed only to diſcover its fuſibility, without any attention to its colour.

When thoſe ores are to be reduced whoſe metals are very eaſily calcined, as tin, zinc, &c. it may be of ſervice to add hard reſin, as the charcoal cannot afford enough of it in the open fire of theſe aſſays. The manner of melting the volatile metals out of their ores *per deſcenſum* might alſo be imitated: for inſtance, a hole might be made in the charcoal, wide above and very narrow at the bottom; a little piece of the ore being then laid at the upper end of the hole, and covered with ſome very ſmall pieces of the charcoal, the flame muſt be directed on the top; the metal might thus run into the hole below, concealed from the violence of the fire, particularly if the ore is very fuſible.

The uſe of the apparatus above referred to, and which may be called a pocket laboratory, as the whole admits of being packed into a ſmall caſe, is chiefly calculated for a travelling mineraliſt. But a perſon who always reſides at one place may make it more commodious to himſelf, and avoid the trouble of blowing with the mouth. For this purpoſe he may have the blow-pipe go through a hole in a table, and fixed underneath to a ſmall pair of bellows with double bottoms, ſuch as ſome of the glaſs-blowers uſe, and then nothing more is required than to move the bellows with the feet during the experiment; in this caſe a lamp may be uſed inſtead of a candle. This method would be attended with a ſtill greater advantage, if there were many ſuch parts as *c*, *fig.* 13. *Pl.* CCXXVI. the openings of which were of different dimenſions: thoſe parts might by a ſcrew be faſtened to the main body of the blow-pipe, and taken away at pleaſure. The advantage of having theſe nozzles of different capacities at their ends, would be that of exciting a ſtronger or weaker heat as occaſion might require. It would only be neceſſary to obſerve, that in proportion as the nozzle of the pipe is enlarged, the quantity of the flame muſt be augmented by a thicker wick in the lamp, and the force of blowing increaſed by weights laid on the bellows; a much intenſer heat would thus be produced by a pipe of conſiderable opening at the end, by which the experiments muſt undoubtedly be carried farther than by the common blow-pipe.

A traveller, who has ſeldom an opportunity of carrying many things along with him, will find this laboratory and its apparatus ſufficient for moſt experiments that can be made on a journey. He ſhould alſo have a little box including the different acids, and one or two matraſſes to try mineral bodies in liquid menſtrua. Theſe are, the acids of nitre, of vitriol, and of common ſalt. Moſt of the ſtones and earths are attacked at leaſt in ſome degree, by the acids; but the calcareous are the eaſieſt of all to be diſſolved by them. The acid of nitre is that which is moſt uſed in theſe experiments; it diſſolves the limeſtone, when pure, perfectly, with a violent efferveſcence, and the ſolution becomes clear; when the limeſtone enters into ſome other body, it is nevertheleſs diſcovered by this acid, through a greater or leſs efferveſcence in proportion to the quantity of the calcareous particles, unleſs there are ſo few as to be almoſt concealed from the acid by the heterogeneous ones. A calcareous body, which nearly reſembles a ſiliceous or argillaceous one may be thus known from theſe latter, without the blow-pipe, merely by pouring one or two drops of this acid upon it; which is very convenient when there is neither opportunity nor time to uſe this inſtrument.

The gypſa, which conſiſt of lime and the vitriolic acid, are not in the leaſt attacked by the acid of nitre, if they contain a ſufficient quantity of their own acid; becauſe the vitriolic acid ha a ſtronger attraction to the lime than the acid o nitre: but if the calcareous ſubſtance is not perfectly ſaturated with the acid of vitriol, then a efferveſcence ariſes with the acid of nitre, more or leſs in proportion to the want of the vitriolic acid. Theſe circumſtances are often very eſſentia in diſtinguiſhing the *calcarea* and *gypſa*.

The acid of nitre is likewiſe neceſſary in trying the zeolites, of which ſome ſpecies have the ſingular effect to diſſolve with efferveſcence in thi acid; and within a quarter of an hour, though ſometimes not until ſeveral hours after, to change the whole ſolution into a clear jelly, of ſo firm a conſiſtence, that the glaſs wherein it is contained may be reverſed without its falling out. I any mineral body is tried in this menſtruum, and only a ſmall quantity is ſuſpected to be diſſolved though it was impoſſible to diſtinguiſh it with the eye during the ſolution, it can be eaſily diſcovered by adding to it *ad ſaturitatem* a clear ſolution of the alkali, when the diſſolved part will be precipitated, and fall to the bottom. For this purpoſe the *ſal ſodæ* is very uſeful. The acid of nitre will ſuffice for making experiments upon ſtone and earths; but if the experiments are to be extended to the metals, the other two acids are alſo neceſſary.

Another inſtrument is alſo neceſſary to a complete Pocket Laboratory, viz. a waſhing trough (*fig.* 21.), in which the mineral bodies, and particularly the ores, may be ſeparated from each other, and from the adherent rock, by water. Thi trough is very common in laboratories, and i uſed of different ſizes; but here only one is required of a moderate ſize, ſuch as 12 inches and a half long, 3 inches broad at the one end, and one inch and a half at the other end, ſloping down from the ſides and the broad end to the bottom where it is three quarters of an inch deep. It may however, be made of much ſmaller dimenſions It is commonly made of wood, which ought to be choſen ſmooth, hard, and compact, where

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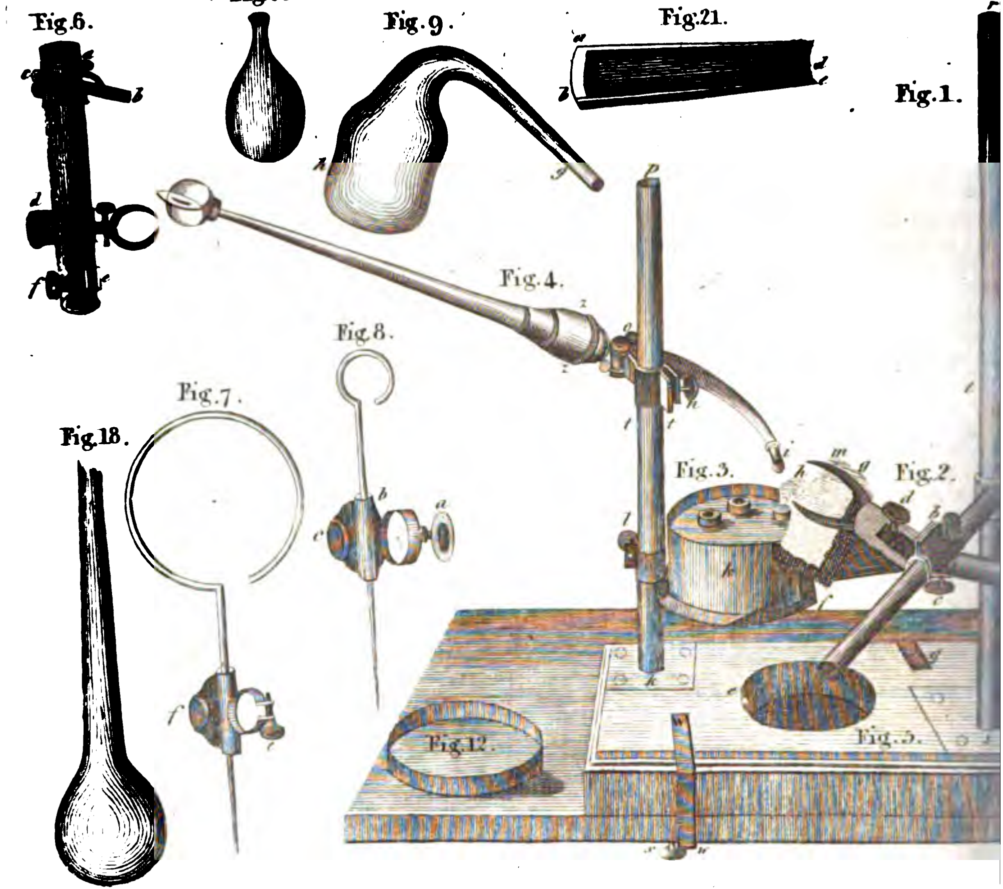

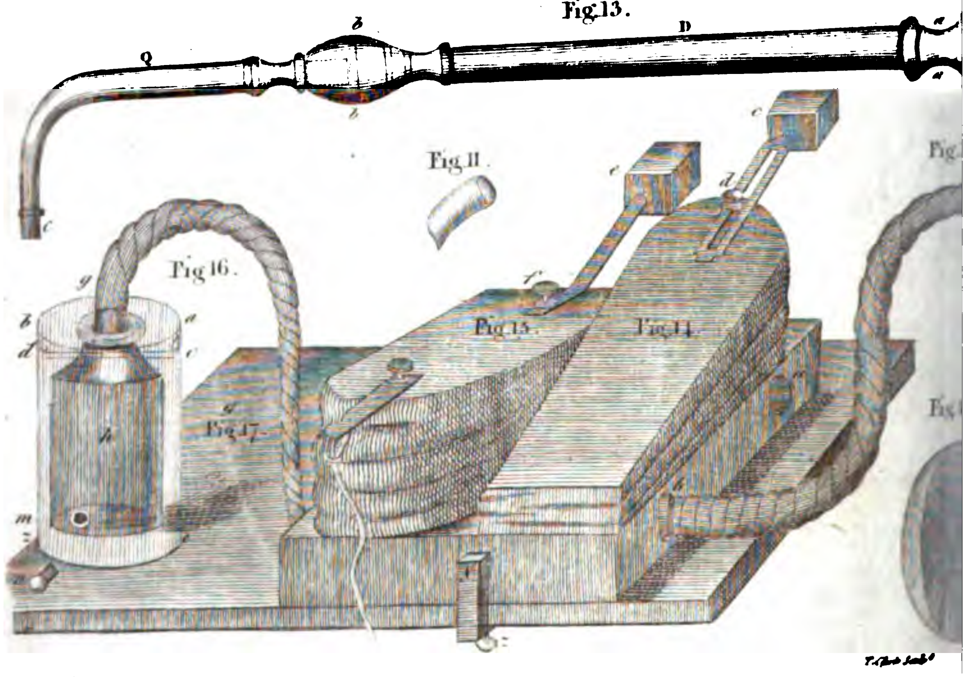

T. Clerk Sculpt

are no pores in which the minute grains of the pounded matter may lie concealed. If any ſuch matter is to be waſhed as is ſuſpected to contain ſome native metal, ſuch as ſilver or gold, a trough ſhould be procured for this purpoſe of a very ſhallow ſlope, becauſe the minute particles of the native metal have then more power to aſſemble together at the broad end, and ſeparate from the other matter.

The management of this trough, or the manner of waſhing, is this: When the matter is mixed with about 3 or 4 times its quantity of water in the trough, this is kept very looſe between two fingers of the left hand, and ſome light ſtrokes given on its broad end with the right, that it may move backwards and forwards; by which means the heavieſt particles aſſemble at the broad and lower end, from which the lighter ones are to be ſeparated by inclining the trough, and pouring a little water on them. By repeating this proceſs, all ſuch particles as are of the ſame gravity may be collected together, and ſeparated from thoſe of different gravity, provided they were before equally pounded: though ſuch as are of a clayey nature, are often very difficult to ſeparate from the reſt, which, however, is of no great conſequence to a ſkilful and experienced waſher. The waſhing proceſs is very neceſſary, as there are often rich ores, and even native metals, found concealed in earths and ſand in ſuch minute particles as not to be diſcovered by any other means.

Chap. III. Deſcription *of an* Improved Portable Laboratory *for aſſaying* Minerals.

The chief pieces and implements of the portable laboratories are repreſented in *Plate* XXIII. at Blow-pipe, and in *Plate* CCXXVI.

I. The firſt contains thoſe belonging to the *Dry* Laboratory, ſo called on account of its containing whatever is required to try all kinds of foſſils in the dry way by fire, without any of the humid menſtruums. They are made to pack in a box of the ſize of an 8vo book, lined with green velvet, and covered with black fiſh-ſkin; the inſide divided into different compartments, ſuited to the ſize, form and number of the implements it is to contain. See Blow-Pipe. The following improvements have been made of that inſtrument by Mr Magellan.

D and Q (*Pl.* CCXXVI, *fig.* 13.) are the two pieces that form the blow-pipe, which is here repreſented entire. This very uſeful inſtrument has been conſiderably improved of late in England. The mouth-piece *aa* is made of ivory, to avoid the diſagreeable ſenſation of having a piece of metal a long time between the teeth and lips; which, if not of ſilver or gold, may be very noxious to the operator; a circumſtance that has been little noticed before.

1. If the mouth-piece *aa* be made of a round form, it cannot be held for any length of time between the teeth and lips, to blow through it, without ſtraining the muſcles of the mouth, which produces a painful ſenſation. It muſt, therefore, have ſuch an external figure, as to adapt itſelf accurately to the lateral angles of the lips, having a flattiſh oval form externally, with two oppoſite corners to fit thoſe internal angles of the mouth, when it is held between the lips, as may be ſeen in that repreſented in the figure.

2. The ſmall globe *bb* is hollow, for receiving the moiſture of the breath; and muſt be compoſed of two hemiſpheres, exactly ſcrewing into one another in *bb*; the male ſcrew is to be in the lower part, and ſoldered on the crooked part Q of the tube QD, at ſuch a diſtance, that the inſide end of the crooked tube be even with the edge of the hemiſphere, as repreſented by the pointed lines in the figure. But the upper hemiſphere is to be ſoldered at the end of the ſtraight tube D. By theſe means, the moiſture ariſing from the breath falls into the hollow of the lower hemiſphere, where it is collected round the upper inſide end of the crooked part Q of the blow-pipe, without being apt to fall into it.

3. The ſmall nozzles, or hollow conical tubes, adviſed by M. Engeſtrom, Sir T. Bergman, and others, are wrong in the principle; becauſe the wind that paſſes from the mouth through ſuch long cones loſes its velocity by the lateral friction, as happens in hydraulic ſpouts; which, when formed in this manner, never throw the fluid ſo far as when it paſſes through a hole of the ſame diameter, made in a thin plate of a little metallic cap that ſcrews at the end of the large pipe. On this account the little cap *c* is employed, having a ſmall hole in the thin plate, which ſerves as a cover to it: and there are ſeveral of theſe little caps, with holes of ſmaller and larger ſizes, to be changed and applied whenever a flame is required to be more or leſs ſtrong.

4. Another convenience of theſe little caps is, that even in caſe any moiſture ſhould eſcape falling into the hemiſphere *bb*, and paſs along with the wind through the crooked pipe Q, it never can arrive at nor obſtruct the little hole of the cap *c*, there being room enough under the hole in the inſide, where this moiſture muſt be ſtopped till it is cleaned and wiped out. The ſtream of air that is impelled by the blow-pipe (as in *fig.* 3.) upon the flame, muſt be conſtant and even, and muſt laſt as long as the experiment continues to require it. This labour will fatigue the lungs, unleſs an equable and uninterrupted inſpiration can at the ſame time be continued. To ſucceed in this operation without inconvenience, ſome practical labour is neceſſary.

Every aſſay ought always to begin by the exterior flame, which muſt be firſt directed upon the maſs under examination; and, when its efficacy is well known, then the interior blue flame is to be employed. After the ore is roaſted, it is to be rounded upon the ſteel plate by the hammer; the particles being prevented from being diſſipated by the ring H (*fig.* 9, *Plate* XXIII.) within which the pieces to be broken are put.

Among the apparatus, 3 phials are neceſſary, containing the *borax*, *ſal ſodæ*, and *ſal fuſibile microcoſmicum*. Other uſeful articles are, A ſmall link of hard ſteel, to try the hardneſs or ſoftneſs of mineral ſubſtances, and to ſtrike fire for lighting the candle: A piece of black flint, to ſerve as a touch-ſtone; for, being rubbed with any metal, if it be gold, the marks will not be corroded by aqua fortis; and alſo to ſtrike fire, when neceſſary, with the link of ſteel: An artificial loadſtone, properly armed with iron, for the better preſervation of its attractive power; it ſerves to diſcover the ferruginous particles of any ore, after it has been roaſted and powdered: A triple magnifier, which, differently combined, produces 7 magnifying powers, to diſtinguiſh the ſtructure and metallic parts of ores, and the minute particles of native gold: (See *Plate* CCXVIII. *fig.* 15.) A file, to try the hardneſs of ſtones and cryſtals, &c.: Some pieces of dry agaric or tinder, and ſome ſplinters of wood tipped with brimſtone, to ſerve as matches.

II. For performing experiments in the *Humid Way*, the chief additional articles (and which muſt be kept in a ſeparate caſe) are, a collection of phials, containing the principal acids, teſts, precipitants, and re-agents, both for examining mineral bodies by the humid way, and for analyſing the various kinds of mineral waters. Thoſe with acids and corroſive ſolutions have not only ground ſtopples, but alſo an external cap to each, bound over the ſtopple, and ſecured downward by a bit of wax between both, to confine the corroſive and volatile fluids. But thoſe which contain mild fluid liquors do not need ſuch external caps; and thoſe with dry inoffenſive ſubſtances are only ſtopped with corks. There are alſo two ſmaller cylindrical phials, to exhibit the changes of colour produced by ſome of the re-agents in thoſe analytical aſſays. There are alſo two or three ſmall matraſſes, to hold the ſubſtances with their ſolvents over the fire; a ſmall glaſs funnel for pouring the fluids; a ſmall porcelain mortar, with its peſtle; one or two crucibles of the ſame ſubſtance; a ſmall wooden trough to waſh the ground ores; ſome glaſs ſticks to ſtir up the fluid mixtures; and, finally, pieces of paper tinged red, yellow, and blue, by the tinctures of Fernambuc wood (commonly called Braſil wood), turmeric, and litmus, thickened with a little ſtarch.

The following liſt contains the names (chiefly the *old* names) of the various fluid teſts and re-agents neceſſary for theſe aſſays. But the whole number being too large to be all contained in a portable caſe, every one may give the preference to thoſe he likes beſt.

1. Concentrated vitriolic acid, whoſe ſpecific gravity may be expreſſed in the outſide. 2. Nitrous acid, purified by the nitrous ſolution of ſilver. 3. Concentrated marine acid, with its ſpecific gravity. 4. Marine acid dephlogiſticated. 5. Aqua regia for gold, viz. 2 nit. and 1 marine. 6. Aqua regia for platina, viz. half marine and half nitrous acid. 7. Nitrous ſolution of ſilver. 8. Nitrous ſolution of mercury, made in the cold. 9. Muriatic ſolution of barytes. 10. Nitrous ſolution of lime. 11. Muriatic ſolution of lime. 12. Mercury in its metallic ſtate. 13. Corroſive ſublimate of mercury. 14. White arſenic. 15. Nitrous ſolution of ſilver. 16. Nitrous ſolution of copper. 17. Acid of ſugar. 18. Liquor probatorius vini. 19. Hepar ſulphuris. 20. Oil of tartar *per deliquium*. 21. Salt of tartar. 22. Cauſtic vegetable alkali. 23. Pearl aſhes. 24. Soapmaker's ley. 25. Common ſalt. 26. Vitriolated argills, or alum. 27. Vitriol of iron, or copperas. 28. Nitrous ſolution of ſilver. 29. Acetous ſolution of lead. 30. Acetous ſolution of barytes.
31. Ferruginous pruſſiate of potaſh. 32. Lin
water. 33. Pruſſiate of lime. 34. Cauſtic vo
tile alkali. 35. Mild volatile alkali, dry.
Rectified ſpirit, or alcohol. 37. Æther. 38. S
rituous tincture of galls. 39. Spirituous ſolutic
of ſoap. 40. Syrup of violets. 41. Tincture
litmus. 42. Tincture of Braſil wood. 43. Ti
ture of turmeric. 44. Oil of olives. 45. Oil
linſeed. 46. Oil of turpentine. 47. Eſſential
of wild-ſorrel. 48. Hepar ſulphuris. 49. Sug
of lead. 50. Solution of alum.

The method of applying the above teſts
acids and re-agents may be ſeen in BERGMAN
Treatiſes of the Analyſis of Waters, and of *Aſſayi*
by the Humid Way; in KIRWAN's *Elements of*
neralogy; in the *Elements of Chemiſtry of Dijo*
in the *Memoirs* of the ſame Academy; in *Fourcro*
Lectures of Chemiſtry, &c.

III. The *Lamp-furnace* Laboratory, for expe
ments both by the *humid* and the *dry* way, is
very curious and uſeful, though ſmall apparatu
It is an improvement of one contrived by
MORVEAU, in conſequence of the information
received from his friend the preſident de Virl
who ſaw at Upſal how advantageouſly the la
eminent Sir T. Bergman availed himſelf of th
convenience for many analytical proceſſes in m
niature, by the uſe of very ſmall glaſs veſſels abo
one inch diameter, and other implements of pr
portional ſize, for performing various chemic
operations. See the *Dijon Memoirs* for 178
Part I. p. 171.

When theſe proceſſes are properly conducte
though in miniature, the lamp furnace will prov
amply ſufficient to perform, in a few minutes, an
with very little expenſe, the various ſolution
digeſtions, and diſtillations, which otherwiſe woul
require large veſſels, ſtills, retorts, reverberator
furnaces, &c. to aſcertain the component par
of natural bodies; though it is not always ſuff
cient to aſcertain their reſpective quantities. I
this laſt caſe, operations muſt be performed i
great laboratories, and on a large ſcale, at a co
ſiderable expenſe. But the ſubſtances are ſo
times too valuable; for inſtance, when preci
ſtones are to be examined, the laſt way never
be attempted.

Theſe ſmall proceſſes have likewiſe another
vantage which cannot be obtained in large wo
viz. that one can obſerve the gradual progreſs
each operation; retard or urge it, as it may
quire; and aſcertain at pleaſure each ſtep of ev
experiment, with the phenomena attending it.

The lamp furnace is mounted in a very ſmall
rallelogram of mahogany, about 6 inches long
4 wide: See *fig.* 5. *pl.* CCXXVI. This is k
ſteady over the edge of a common table, by me
of the metallic clamp *ww*, which is faſtened
the ſcrew *x*. The pillar *rs* is ſcrewed in a ve
cal poſition on the plate *s*, being about 10 inc
high; the other is ſcrewed to the oppoſite c
ner marked *pk*, and is only 7½ inches long; b
are compoſed of two halves, that ſcrew at *tt*, to
eaſily packed up with all the implements in a c
covered with black fiſh ſkin, and lined with gr
velvet, like the other laboratory already
ſcribed.

The lamp *k*, *fig.* 3. is ſupported on the plat
wh

which has a ring *l* that runs in the column *p k*, and may be fixed by the ſcrew *l* at the required height. This lamp has 3 ſmall pipes of different ſizes, to receive as many wieks of different thickneſs, and to be filled with ſpirit of wine. By a ſimilar method, a piece of charcoal is mounted and ſupported by the pliers or little forceps ſcrewed to the arm *ac*, *fig.* 1. which has all the motions requiſite for being fixed by means of proper ſcrews, at a proper diſtance from the flame of the wick *k*. The blow-pipe, *fig.* 4. is, by a ſimilar mechaniſm, mounted on the ſimilar column *pq*, at ſuch a diſtance as to blow the flame *bi* to the piece of ore *m*, which is upon the charcoal *g f*. Every thing being diſpoſed in this manner, the operator blows through the mouth piece of the blow-pipe, *fig.* 4. and remains with his hands free to make the changes and alterations he may think proper. *N. B.* The large round cavity *e* in the middle of the parallelogram, *fig.* 5. is to receive the lamp *k*, *fig.* 3. when all the implements are packed up in their caſe of black fiſh-ſkin; and the cover of the lamp is repreſented by *fig.* 12.

But if the operator has the double bellows, *fig.* 14. and 15. he fixes them, at a due diſtance, to the ſame table by the braſs clamp *y*. He then unſcrews the blow-pipe at *z z*: joins the mouth *n* of the flexible tube to the hemiſphere *z z*, paſſing each orifice through the leathern tube, *fig.* 11. and tying both ends with a waxed thin packthread. If he works with his foot on the pedal, the ſtring of which is ſeen hanging from the end of the bellows, *fig.* 15. (and is always up, on account of the weight *e*), then the air is abſorbed by the bellows *fig.* 15. from whence it is propelled by the motion of the foot on the pedal to the bellows, *fig.* 14. whoſe conſtant weight *r* drives it out through the flexible pipe, *fig.* 10. It of courſe enters the curbed part *zzi* of the blow-pipe, and drives the flame on the piece *m* of the ore, that is to be examined upon the charcoal. *N. B.* 1. This double bellows is packed up by itſelf in a mahogany caſe, about 9 inches long, 6½ wide, and about 3¼ deep outſide meaſure. 2. The laſt blowing bellows, *fig.* 14. has an inſide valve, which opens when the upper ſurface of it is at its greateſt height; in order to let the ſuperfluous air eſcape out, as it would otherwiſe iſſue with great velocity out of tube *fig.* 11. and ſpoil the operation.

If the operator chooſes to apply vital air in his proceſs, let him fill the glaſs jar *b*, *fig.* 17. with this air; and put it within the tube marked *abze*, filled with water, faſtening the neck of the jar within by croſs-board *ed*, which has a hole in it for that purpoſe; then introducing the two ends of the flexible hollow tube, *fig.* 16. both to the mouth of the jar and to the hole of the bellows *fig.* 15. he opens the hole *m* of the jar, that was ſtopped with the ſtopple *n*; the column of the water paſſes in thro' *n*, and forces up the vital air, which enters the bellows, and, of courſe, by the alternate motion of the pedal, paſſes through the ends of the blow-pipe, to urge the flame upon the piece of ore *m*, *fig.* 2. on the charcoal *g*. But the vital air may be alſo received at the ſame time that it is produced, by tying the pipe, *fig.* 16. to the mouth of an earthen retort, or even of a glaſs retort well coated, according to the method of Mr Willis, deſcribed in the *Tranſactions of the Society of Arts*, Vol. V. p. 96. This laſt conſiſts in diſſolving 2 oz. of borax in a pint of boiling water, and adding to the ſolution as much ſlaked lime as is neceſſary to form a thin paſte. This glaſs retort is to be covered all over with it, by means of a painter's bruſh, and then ſuffered to dry. It muſt then be covered with a thin paſte made of linſeed oil and ſlacked lime, except the neck that enters into the receiver. In two or three days it will dry of itſelf; and the retort will then bear the greateſt fire without cracking. Two ounces of good nitre, urged in the retort by a good fire on a chaffing-diſh, will afford about 700 or 800 ounce meaſures of oxygenous air.

To make any other kind of chemical aſſays, the forceps of *fig.* 2. which ſupports the charcoal, is taken off, by unſcrewing the ſcrew *b*; the blow-pipe is alſo taken off, by looſening the ſcrew *n*; the hoop *fig.* 7. is put in its place, where the metallic baſin *fig.* 19. is put filled with ſand: the piece of *fig.* 8. is ſet on the other pillar *r s*, *fig.* 1. to hold the matraſs, *fig.* 18. upright, or the receiver *fig.* 20. &c. In the ſame manner, the retort *fig.* 9. may be put in the ſand bath inſtead of the matraſs, with its receiver *fig.* 20. which may be ſupported on a bit of cork or wood, hollowed to its figure, and held by the pliers, inſtead of the charcoal *fig.* 2. But if the operation is to be made in the naked fire, the neck of the retort, *fig.* 9. being luted to the receiver, or baloon, *fig.* 20. may be hanged by a little chain with its ring over the flame, being ſuſpended from the piece of *fig.* 8. or 7. ſcrewed to either of the pillars as may be moſt convenient. Otherwiſe the receiver, *fig.* 20. may be ſupported by the round hoop of braſs, *fig.* 7. or 8. ſcrewed at a proper height to the pillar, *fig.* 1. tying round it ſome packthread to defend the glaſs from the contact with the metallic ſupport. The piece of *fig.* 6. may be ſcrewed by its collar and ſcrew *ef* to any of the pillars; carrying with it the retort and its receiver, at proper diſtances, higher or nearer to the lamp, according as the flame is more or leſs violent.

Theſe implements afford all ſorts of conveniences for making any kind of ſmall operations and aſſays in miniature, provided the operator pays a proper attention to the diſpoſition requiſite for each proceſs or operation. Glaſs retorts, receivers, matraſſes, baſins, ſmall funnels, &c. are made by the lamp workers, that blow beads, thermometers, and other ſmall glaſs inſtruments.

The lamp *k*, *fig.* 3. ſhould be filled with ſpirit of wine, becauſe it gives no diſagreeable ſmell; does not produce any fuliginous cruſt on the veſſels as oil does; and gives a dry flame, without ſmoke, and ſtronger than oil. M. de Morveau adds, that the expenſe of ſpirit is quite inconſiderable; and that he performed in 8 or 10 minutes with this apparatus, various diſſolutions, evaporations, and other proceſſes, which otherwiſe would have taken more than three hours, with the expenſe only of two or three halfpence for the ſpirit of wine, whilſt the fuel of charcoal would have coſt near ten or eleven pence.

Morveau juſtly obſerves, that many philoſophers do not apply to chemical operations, for want of opportunity of having a laboratory to perform them; as it requires a proper room, and great expenſes, of many large furnaces, retorts, crucibles, and numerous other implements, &c. But theſe miniature laboratories in a great meaſure afford every advantage, at leaſt to that degree of ſatisfaction ſufficient to aſcertain the contents and products of any ſubſtance ſubjected to trial; for with this ſimple apparatus a man of ordinary abilities may, without embaraſſment, in a very ſhort time, and with little expenſe, perform ſuch diſtillations as require a reverbatory furnace; all ſorts of proceſſes, digeſtions, and evaporations, which require a regular ſand heat; he may vary his experiments or trials, and multiply them to a great number of various performances, draw up his concluſions, and reaſon upon them, without loſs of time, without the hindrance of long preparations to work at large. And even when ſuch large works are to be performed, he may obſerve beforehand various phenomena of ſome ſubſtances, which, if not known in time, would impede the proceſſes at large, or make them fail abſolutely; and all this without the riſk of a conſiderable loſs, and without expoſing himſelf to a great fire, &c.

PART II.

Of the DESCRIPTION and ARRANGEMENT of MINERALS.

The moſt accurate, methodical, and complete Deſcription and Arrangement of Minerals we have yet met with, are thoſe of the ingenious Dr Thomas Thomſon of Edinburgh; inſerted in his *Syſtem of Chemiſtry*, Vols III. and IV. 1802. We ſhall therefore uſe the freedom to quote that excellent work ſo far as it reſpects theſe topics, as the beſt treatiſe we can preſent to our readers on the ſubject of mineralogy, without preſuming to make any material alteration, except leaving out his authorities and moſt of his notes; and abridging a little, where the language can poſſibly admit of it. If the Doctor's ſyſtematic arrangement can admit of any improvement, perhaps it might be by giving *names* to the different genera of earths and ſtones, inſtead of expreſſing their titles by *ſymbols*. (See Chap. IV.) But this we leave to future mineralogiſts to determine.

Chap. I. *Of the* Description *of* Minerals.

"Nothing, at firſt ſight, appears eaſier, than to deſcribe a mineral, and yet, in reality, it is attended with a great deal of difficulty. The mineralogical deſcriptions of the ancients are ſo looſe and inaccurate, that many of the minerals to which they allude cannot be aſcertained; and conſequently, their obſervations, however valuable, are often, as far as reſpects us, altogether loſt. It is obvious, that to diſtinguiſh a mineral from every other, we muſt either mention ſome peculiar property, or a collection of properties, which exiſt together in no other mineral. Theſe properties muſt be deſcribed in terms rigidly accurate, which convey preciſe ideas of the very properties intended, and of no other properties. The ſmalleſt deviation from this would lead to confuſion and uncertainty. Now it is impoſſible to deſcribe minerals in this manner, unleſs there be a peculiar term for each of their properties, and unleſs this term be completely underſtood. Mineralogy therefore muſt have a language of its own;—it muſt have a *term* to denote every mineralogical property, and each of theſe terms muſt be accurately defined. The language of mineralogy was invented by the celebrated Werner of Freyberg, and firſt made known by his treatiſe on *the External Characters of Minerals*. Of this language the following general deſcription of the properties of minerals will convey an idea.

"The properties of minerals may be divided into two claſſes. 1. Properties diſcoverable without deſtroying the texture of the minerals; 2. Properties reſulting from the action of other bodies on it. The firſt claſs has, by Werner, been called *external*, and by ſome French writers *phyſical*, the 2d *chemical*.

"The *external* properties may be arranged under the following heads: 1. Figure. 2. Surface. 3 Tranſparency. 4. Colour. 5. Scratch. 6. Luſtre 7. Hardneſs. 8. Ductility. 9. Fracture. 10. Texture. 11. Structure. 12. Fragments. 13. Feel. 14 Sound. 15. Smell. 16. Taſte. 17. Gravity. 18 Magnetiſm. 19. Electricity.

"I. By Figure is meant the ſhape or form which a mineral is obſerved to have. The figur of minerals is either *regular*, *particular*, or *amorphous*. 1. Minerals which aſſume a regular figur are ſaid to be cryſtallized. The *ſides* of a cryſta are called *faces;* the ſharp line formed by the inclination of two faces is called an *edge;* and th corner, or angle, formed by the meeting of ſeveral edges in one point, is called a *ſolid angle*, c ſimply *an angle*. Thus a cube has 6 faces, 1 edges, and 18 angles. 2. Some minerals, thoug not cryſtallized, affect a *particular* figure. Thei figures are the following: *Globular*, like a globe *oval*, like an oblong ſpheroid; *ovate*, like an egg *cheeſe-ſhaped*, a very flattened ſphere; *almond-ſhaped*, like an almond; *lenticular*, like a doubl convex lenſe, compreſſed and gradually thinner towards the edges; *cuneiform*, like wedge; *nodulous*, having depreſſions and protuberances like a potatoe; *botryoidal*, like grapes cloſely preſſed together; *dentiform*, longiſh and tortuous, and thicker at the bottom than the to *wireform*, like a wire; *capillary*, like hair, fir than the preceding; *retiform*, threads interwov like a net; *dendritic*, like a tree, having branch iſſuing from a common ſtem; *ſhrubform*, branch not ariſing from a common ſtem; *coralcid* branched like coral; *ſtalactitical*, like icic *clavated*, like a club, long, and thicker at one than another; *faſciform*, long, ſtraight, cylin cal bodies, united like a bundle of rods; *tub* cylindrical and hollow. 3. When minerals neither a regular nor particular ſhape, they ſaid to be *amorphous*.

"II. By surface is meant the appearanc the external ſurface of minerals. The ſurfac either *uneven*, compoſed of ſmall unequal el tions and depreſſions: *ſcabrous*, having very ſ *ſharp* and rough elevations, more eaſily felt ſces; *druſy*, covered with very minute cryſtals; *rough*, compoſed of very minute *blunt* elevations, eaſily diſtinguiſhable by the feel; *ſcaly*, compoſed of very minute thin ſcale-like leaves; *ſmooth*, free from all inequality or roughneſs; *ſpecular*, having a ſmooth poliſhed ſurface like a mirror; or *ſtreaked*, having elevated, ſtraight, and parallel lines. This laſt character is confined to the *ſurface* of cryſtals. The ſtreaks are either *tranſverſe*; *longitudinal*; *alternate*, in different directions on different faces; *plumoſe*, running from a middle ribe; or *decuſſated*, croſſing each other.

" III. By TRANSPARENCY is meant the proportion of light which minerals are capable of tranſmitting. They are *tranſparent* or *pellucid* when objects can be ſeen diſtinctly through them; *diaphanous*, when objects are ſeen through them indiſtinctly; *ſubdiaphanous*, when light paſſes, but in ſo ſmall a quantity that objects cannot be ſeen through them; *opaque*, when no light is tranſmitted.—I have denoted 3 degrees of tranſparency by the figures 4, 3, 2. When a mineral is ſubdiaphanous only at the edges, that is denoted by the figure 1. Opacity is denoted by 0.—When opaque minerals become tranſparent in water, they are called *hydrophanous*. When objects are ſeen double through a tranſparent mineral, it is ſaid to *refract doubly*.

" IV. The *Colours* of minerals may be reduced to 8 claſſes:

1. *Whites*. Snow white; pure white. Reddiſh w.: White with a light tint of red. Yellowiſh w.: White with a light tint of yellow. Silver w. Yellowiſh w. White with a metallic luſtre. Greyiſh w. White with a light tint of black. Greeniſh w. White with a light tint of green. Milk w. White with a light tint of blue. Tin w. Milk w. of a metallic luſtre.

" 2. *Greys*. Bluiſh g.: Grey with a little blue. Lead g.: bluiſh g. with a metallic luſtre. Pearl g.: Light g. with a ſlight mixture of violet blue. Smoke g.: dark g. with a little blue and brown. Greeniſh g.: light g. tinged with green. Yellowiſh g.: a light g. tinged with yellow. Steel g.: a dark g. with a light tint of yellow and a metallic luſtre. Black g. the darkeſt g. with a tint of yellow.

3. *Blacks*. Greyiſh black: Black with a little white. Browniſh b.: black with a tint of brown. Black: pure b. Iron black: pure b. with a ſmall mixture of white and a metallic luſtre. Bluiſh b.: black with a tint of blue.

" 4. *Blues*. Indigo blue: a dark blackiſh b. Pruſſian b.: the pureſt b. Azure b.: a bright b. with ſcarce a tint of red. Smalt b.: a light b. Violet b.: a mixture of azure b. and carmine. Lavender b.: violet b. mixed with grey. Sky b.: a light b. with a ſlight tint of green.

" 5. *Greens*. Verdegris green: a bright g. of a bluiſh caſt. Sea g.: a very light g. a mixture of verdegris g. and grey. Beryl g. the preceding, but of a yellowiſh caſt. Emerald g.: pure g. Graſs g.: pure g. with a tint of yellow. Apple g.: a light g. formed of verdigris g. and white. Leek g.: a very dark g. with a caſt of brown. Blackiſh g. the darkeſt g. with a mixture of leek g. and black. Piſtachio g.: Graſs g. yellow and a little brown. Olive g.: a pale yellowiſh g. with a tint of brown. Aſparagus g.: the lighteſt g. yellowiſh with a little brown and grey.

" 6. *Yellows*. Sulphur y.: a light greeniſh y. Braſs y.: the preceding with a little leſs green and a metallic luſtre. Lemon y.: Pure y. Gold y.: the preceding with a metallic luſtre. Honey y.: a deep y. with a little reddiſh brown. Wax y.: the preceding, but deeper. Pyritaceous y.: a pale y. with grey. Straw y.: a pale y. a mixture of ſulphur y. and reddiſh grey. Wine y.: a pale y. with a tint of red. Ochre y.: darker than the preceding, a mixture of lemon y. with a little brown. Iſabella y.: a pale browniſh y. a mixture of pale orange, with reddiſh brown. Orange y.: a bright reddiſh y. formed of lemon y. and red.

" 7. *Reds*. Aurora r.: a bright yellow r.: a mixture of ſcarlet and lemon yellow. Hyacinth r.: a high r. like the preceding, but with a ſhade of brown. Brick r. lighter than the preceding, a mixture of aurora r. and a little brown. Scarlet r.: a bright and high r. with ſcarce a tint of yellow. Copper r. a light yellowiſh r. with the metallic luſtre. Blood r.: a deep r. a mixture of crimſon and ſcarlet. Carmine r.: pure r. verging towards a caſt of blue. Cochineal r.: a deep r.: a mixture of carmine with a little blue and a very little grey. Crimſon r.: a deep r. with a tint of blue. Fleſh r.: a very pale r. of the crimſon kind. Roſe r.: a pale r. of the cochineal kind. Peach bloſſom r.: a very pale whitiſh r. of the crimſon kind. Mordoré, a dark dirty crimſon r. a mixture of crimſon and a little brown. Browniſh r.: a mixture of blood r. and brown,

" 8. *Browns*. Reddiſh b.: a deep b. inclining to red. Clove b.: a deep b. with a tint of carmine. Yellowiſh b. a light b. verging towards ochre yellow. Umber b.: a light b. a mixture of yellowiſh b. and grey. Hair b. intermediate between yellow b. and clove b. with a tint of grey. Tombac b.: a yellowiſh b. of a metallic luſtre, formed of gold, yellow and reddiſh brown. Liver b.: a dark b.: blackiſh b. with a tint of green. Blackiſh b.: the darkeſt brown.

" Colours, in reſpect of *intenſity*, are either *dark*, *deep*, *light* or *pale*. When a colour cannot be referred to any of the preceding, but is a mixture of two, this is expreſſed by ſaying, that the prevailing one *verges* towards the other, if it has only a ſmall tint of it; *paſſes into* it, if it has a greater.

" V. By the SCRATCH or STREAK, is meant the mark left when a mineral is ſcratched by any hard body, as the point of a knife. It is either *ſimilar*, of the ſame colour with the mineral, or *diſſimilar*, of a different colour.

" VI. LUSTRE is the gloſs or brightneſs, which appears on the external ſurface of a mineral, or on its internal ſurface when freſh broken. The firſt is called *external*, the 2d *internal* luſtre. Luſtre is either *common*, that which moſt minerals poſſeſs; *ſilky*, like that of ſilk or mother-of-pearl; *waxy*, like that of wax; *greaſy*, like that of greaſe; or *metallic*, like that of metals. As to the degree, the greateſt is called *ſplendent*; the next *ſhining*; the 3d *dulliſh*; and when only a few ſcattered particles ſhine, the luſtre is called *dull*. Theſe degrees are noted by the figures, 4, 3, 2, 1. and no luſtre by 0.

" VII. I have uſed Mr KIRWAN'S FIGURES to

denote

Its texture is generally fibrous: ſometimes it is cryſtallized in ſlender priſmatic columns of various lengths. It was at firſt conſidered as a carbonat of barytes; but Dr Hope, in 1791, made experiments on it, which demonſtrate that it is a compound of carbonic acid and a peculiar earth, which he named *Strontites*. Theſe experiments were repeated between 1793 and 1797, by Klaproth, Kirwan, Pelletier, Fourcroy, and Vauquelin; the properties of the new earth farther inveſtigated and confirmed; and the name of *Strontian* generally adopted. It is found abundantly in different places, always combined with the carbonic or ſulphuric acid. The former may be expelled from the carbonat, and the ſtrontian obtained pure, by mixing the mineral with charcoal powder, and expoſing it to a heat of 140° Wedgewood; or by diſſolving the mineral in nitric acid, evaporating the ſolution till it cryſtallizes, and expoſing the cryſtals in a crucible to a red heat, till the nitric acid is driven off. Strontian may be obtained from the ſulphat by the proceſs deſcribed for obtaining barytes." See Chemistry, *Index*.

"Strontian thus obtained is in porous maſſes, of a greyiſh white colour; its taſte is acrid and alkaline, and it converts vegetable blues to green. Its ſpecific gravity, according to Haſſenfratz, is 1·647. It is not poiſonous. It does not melt when heated: Before the blow-pipe it is penetrated with light, and ſurrounded with a flame ſo white and brilliant, that the eye can ſcarcely behold it. When water is ſprinkled on ſtrontian, it is ſlacked, becomes hot, and falls to powder, like barytes: 162 parts of water at 60° diſſolve nearly one part of ſtrontian. The ſolution is clear, and converts vegetable blues to green. Hot water diſſolves it in much larger quantities, and as it cools, the ſtrontian is depoſited in tranſparent cryſtals, generally parallelograms; which, expoſed to the air, attract carbonic acid, and fall into powder. Their ſpecific gravity is 1·46. It is not acted on by light, oxygen, hydrogen, azot, carbon, nor charcoal; but combines readily with ſulphur and phoſphorus. The *ſulphuret* may be made by fuſing the two ingredients in a crucible. The *phoſphuret* may be prepared by the ſame proceſs as the phoſphuret of barytes." (See Chemistry, *Index*.) "Strontian has no action upon metals, but combines with ſeveral of their oxides, though neither with alkalies nor barytes. It tinges flame of a beautiful red or purple colour. Its affinities, as aſcertained by Dr Hope and M. Vauquelin, are as follows: Sulphuric acid, phoſphoric, oxalic, tartarous, fluoric, nitric, muriatic, ſuccinic, acetous, arſenic, boracic, carbonic."

III. "Lime abounds in moſt parts of the world, or rather there is no part of the world where it does not exiſt. It is found pureſt in limeſtones, marbles, and chalk. None of theſe, however, is, ſtrictly ſpeaking, lime; but they are all capable of becoming lime, by burning or keeping them in a white heat."

The various properties, phenomena, and combinations of this earth, being pretty fully detailed under the article Chemistry, we need only add a ſhort extract from Dr Thomſon. "It had been long known that limeſtone loſes a good deal of weight by being calcined. Van Helmont, Ludovicus, and Macquer, made experiments to diſcover what was ſeparated from it during calcination, and concluded that it was pure water Stahl ſuppoſed, that the new properties whic lime acquired by calcination were owing to th more minute diviſion of its particles by fire Boyle endeavoured to prove that theſe propertie are owing to the *fixation* of the fire in the lime a theory embraced by Newton, illuſtrated b Hales, and new-modelled by Meyer. But whil Meyer was thus employed in Germany, D Black of Edinburgh publiſhed, in 1756, thoſ celebrated experiments which form ſo brilliant a era in the hiſtory of chemiſtry. He aſcertained that the quantity of water ſeparated during it calcination is not equal to the weight loſt, an concluded that it muſt have loſt ſomething elſ Recollecting that Dr Hales had proved that limeſtone, during its ſolution in acids, emits a grea quantity of air, he conjectured that *this* might b what it loſt during calcination. He calcined i accordingly, applied a pneumatic apparatus, foun his conjecture verified, and that the *air* and th *water*, which ſeparated from the lime, were together preciſely equal to the loſs of weight it ha ſuſtained; and he found that, by reſtoring agai the ſame quantity of *air* to lime, it was converte into limeſtone. This air, which he called fixe air, is that ſpecies of gas now named *carboni acid gas*." See Chemistry, *Index*.

IV. Magnesia. The diſcovery, propertie phenomena, and combinations of this earth, ar fully detailed under the articles Chemistry, an Magnesia, N° 5. Dr Thomſon obſerves, th there is but little affinity between magneſia an barytes or ſtrontian, and that it has no action o metals or their oxides.

V. Alumina, Alumine, or the baſis of Alum formerly called Argill, is an earth, the natu and properties of which were little known to th ancients, though the ſalt, produced from its combination with ſulphuric acid, was well known an much employed by them in dyeing, &c. Stah and Newmann ſuppoſed this earth to be lime but in 1727, Geoffroy junior demonſtrated, tha "the earth of alum conſtitutes a part of Clay." Its properties were ſtill farther examined in 175 by Margraff; in 1758 and 1762 by Macquer; i 1767 and 1771 by Bergman; in 1776 by Scheele and in 1801 by Sauſſure junior. The princip properties, phenomena, and combinations of thi earth, are related under Chemistry. See al Alum and Clay. Barytes and ſtrontian combin with alumina, both when heated in a crucible an boiled in water.

"Alumina," ſays Dr Thomſon, "may be obtained by the following proceſs: Diſſolve alu in water, and add ammonia as long as any precipitate is formed. Decant off the fluid part, an waſh the precipitate in a large quantity of wat and then allow it to dry. The earth thus obtained aſſumes two very different appearance according to the method of precipitation. If th alum has been diſſolved in as little water as poſſible, the alumina appears as a white earth, light friable, very ſpongy, and attaching itſelf ſtrongl to the tongue. In this ſtate Sauſſure names i *ſpongy alumina.* But if the alum has been diſſolved in a great quantity of water, the alumina is obtained in a brittle tranſparent yellow-coloured maſs, ſplitting in pieces like roll ſulphur when held in the hand: its fracture is ſmooth and conchoidal; it does not adhere to the tongue, and has not the common appearance of an earthy body. In this ſtate Sauſſure gives it the name of *gelatinous alumina.* Yet though they differ in various other particulars, both ſpecies, dried in the temperature of 60°, contain equal proportions of water. None of the earths is of more importance to mankind than alumina. It forms the baſis of china and ſtone wares, and of crucibles, pots," &c. " It is uſeful to the dyer, fuller," &c.

VI. **Yttria.** " Some time before 1788, Captain **Arhenius** diſcovered, in the quarry of Ytterby in Sweden, a peculiar mineral, different from all thoſe deſcribed by mineralogiſts. Its ſpecific gravity is 4·0497." (For its properties, ſee next chapter, *Genus* XXV.) " A deſcription of it was publiſhed by **Geijer** in 1788, in *Crell's Annals*, and by **Rinman**, in his *Miner's Lexicon.* Prof. **Gadolin** analyſed it in 1794, and found it to contain a new earth. His concluſions were confirmed by **Ekeberg**, in 1797, who named the new earth *Yttria;* and were farther confirmed and extended by Vauquelin and Klaproth, in 1800. Hitherto Yttria has only been found in the above black mineral. When ſeparated from the ſubſtances combined with it, it has the appearance of a fine white powder, and has neither taſte nor ſmell. It is not melted by heat. It has no action on vegetable blues. It is not ſoluble in water, or pure alkalies; but diſſolves readily in carbonat of ammonia. It combines eaſily with acids, and forms with them ſalts, which have a ſweet taſte, and at the ſame time a certain degree of auſterity."

VII. **Glucina** is a new earth, diſcovered by **Vauquelin** in 1798, in conſequence of his analyſing the beryl, at the requeſt of M. **Hauy**, to determine whether it was formed of the ſame ingredients with the emerald, as Hauy had conjectured. The reſult of the analyſis was a confirmation of the ſuſpicions of Hauy, and the diſcovery of a new earth, to which Vauquelin gave the name of *Glucina.*" As we have already given a particular account of the properties and phenomena of this earth, under the article **Glucina**, we need only add, in Dr **Thomson**'s words, that "to obtain it pure, the beryl or hyacinth, reduced to powder, is to be fuſed with thrice its weight of potaſs. The maſs is to be diluted with water, diſſolved in muriatic acid, and the ſolution evaporated to dryneſs. The reſiduum is to be mixed with a great quantity of water, and the whole thrown on a filter. The ſilica, which conſtitutes more than half the weight of the ſtone, remains behind; but the glucina and the other earths, being combined with muriatic acid, remain in ſolution. Precipitate them by carbonat of potaſs: Waſh the precipitate, and then diſſolve it in ſulphuric acid: Add to the ſolution ſulphat of potaſs; evaporate it to the proper conſiſtency, and ſet it to cryſtallize. Alum cryſtals gradually form. When as many of theſe as poſſible have been obtained, pour into the liquid carbonat of ammonia in exceſs; then filter and boil the liquor for ſome time. A white powder gradually appears, which is *Glucina.*"

VIII. **Zirconia** is one of the new earths diſcovered by **Klaproth** in 1789, in analyſing the ſtone called *Jargon* or *Zircon.* (See **Jargon**, § 2. and next chap. *Gen.* XXIV.) After ſeveral fruitleſs experiments by muriatic and ſulphuric acid, neither of which made any impreſſion on zircon, " even (ſays the Dr) when aſſiſted by a melting heat, he at laſt, by calcining it with a large quantity of ſoda, diſſolved it in muriatic acid, and found, that 100 parts of it contained 31·5 of ſilica, 0·5 of a mixture of nickel and iron, and 68 of a new earth, poſſeſſed of peculiar properties, which has received the name of *Zirconia*, from the mineral in which it was detected. Owing probably to the ſcarcity of the zircon, nobody attempted to repeat the analyſis of Klaproth, or to verify his diſcovery. In 1795 he publiſhed his analyſis of the *hyacinth*, another mineral from Ceylon, in which he alſo detected a large proportion of zirconia. This induced Guyton Morveau, in 1796, to examine the hyacinths of Expailly in France. They proved ſimilar to thoſe of Ceylon, and contained the proportion of zirconia indicated by Klaproth. Theſe experiments were repeated, and the new earth ſtill farther examined by Vauquelin. Zirconia has hitherto been found only in the zircon and hyacinth. It may be obtained pure, by the proceſs deſcribed under **Chemistry**, § 714. It precipitates in the form of a fine white powder, which feels ſomewhat harſh when rubbed between the fingers; has neither taſte nor odour; is infuſible by the blow-pipe; but when heated in a charcoal crucible, undergoes a kind of imperfect fuſion, acquires a grey colour, becomes very hard, and is no longer ſoluble in acids. It is inſoluble in water and liquid alkalies. It does not combine with oxygen, combuſtibles, or metals, but with metallic oxides and all the acids."

IX. **Agustina**, a new earth, diſcovered in 1799 by M. **Trommsdorf**, in a mineral called the *Saxon beryl*, found at Georgienſtadt in Saxony, reſembling the beryl of Siberia. Its properties are theſe; " 1. When pure, it reſembles alumina. 2. It is not more ſoluble in fixed alkalies than in their carbonats. 3. Ammonia does not act on it. 4. It retains carbonic acid feebly. 5. It hardens when heated. 6. It is inſoluble in water. 7. Combines with acids, and forms ſalts which have little or *no taſte;* whence the name *aguſtina.* 8, 9. With ſulphuric and acetous acids, it forms ſalts ſcarcely ſoluble. 10. With exceſs of phoſphoric acid, it forms a very ſoluble ſalt."

X. **Silica.** " There is a very hard white ſtone (ſays Dr Thomſon), known by the name of **Quartz**, very common in almoſt every part of the world. Sometimes it is tranſparent and cryſtallized, and then is called **rock crystal.** Very often it is in the form of ſand. As this ſtone, and others which reſemble it, as flint, agate, chalcedony, &c. have the property of melting into a glaſs, when heated along with fixed alkali, they were claſſed together by mineralogiſts under the name of *vitrifiable ſtones.* Mr **Pott**, who firſt deſcribed their properties in 1746, gave them the name of *ſiliceous ſtones*, on the ſuppoſition that they were compoſed of a peculiar earth, called *ſiliceous earth*, or SILICA. This earth was known to GLAUBER, who deſcribes the method of obtaining it; but it was long before its properties were accurately aſcertained. GEOFFROY endeavoured to prove, that it might be converted into lime; and Pott and Beaume, that it might be converted into alumina; but theſe aſſertions were refuted by CARTHEUSER, Scheele, and Bergman. To this laſt we are indebted for the firſt accurate detail of the properties of ſilica.

" SILICA may be obtained pure thus: Mix, in a crucible, one part of pounded flint or quartz, and 3 parts of potaſs, and apply a heat ſufficient to melt the mixture completely. Diſſolve the maſs formed in water; ſaturate the potaſs with muriatic acid, and evaporate to dryneſs. Towards the end of the evaporation, the liquid aſſumes the form of a jelly; and when all the moiſture is evaporated, a white maſs remains behind. This maſs is to be waſhed in a large quantity of water, and dried; it is then SILICA in a ſtate of purity.

" Silica, thus obtained, is a fine white powder, without either taſte or ſmell. Its particles have a harſh feel, as if they conſiſted of very minute grains of ſand. Its ſpecific gravity is 2·66. It may be ſubjected to a very violent heat without undergoing any change. LAVOISIER and MORVEAU ſubjected it to the action of a fire maintained by oxygen gas, without any alteration. SAUSSURE, indeed, ſucceeded in fuſing, by the blowpipe, a portion of it ſo extremely minute as ſcarcely to be perceptible without a glaſs. According to his calculation, the temperature neceſſary for producing this effect is equal to 4043° Wedgewood.

" It is inſoluble in water, except when newly precipitated, and then one part of it is ſoluble in 1000 parts of water. It has no effect on vegetable colours. It is capable of abſorbing one 4th of its weight of water, without letting any drop from it; but on expoſure to the air, the water evaporates readily. When precipitated from potaſs by muriatic acid and ſlow evaporation, it retains a conſiderable portion of water, and forms a tranſparent jelly; but the moiſture evaporates on expoſure to the air.

" Silica is capable of aſſuming a cryſtalline form. Cryſtals of it are found in many parts of the world, named *rock cryſtals*." (See CRYSTAL, § 3—7.) " When pure, they are tranſparent and colourleſs: they aſſume various forms; the moſt uſual is a hexagonal priſm ſurmounted with hexagonal pyramids on one or both ends, the angles of the priſm correſponding with thoſe of the pyramids. Their hardneſs is very great, amounting to 11. Their ſpecific gravity is 2·653.

" Silica neither combines with oxygen, ſimple combuſtibles, nor metals; but it combines with many metallic oxides by fuſion, and forms various coloured glaſſes and enamels. It has a ſtrong affinity with fixed alkalies. It may be combined with them, either by fuſion in a crucible, or by boiling them over it. When the potaſs exceeds the ſilica conſiderably, the compound is ſoluble in water, and conſtitutes what was formerly called *liquor ſilicum*, now *ſilicated potaſs* or *ſoda*. Wh
the ſilica exceeds, the compound is tranſpare
and colourleſs, like rock cryſtal, and is neith
acted on by water, air, nor, excepting one,
acids. This is the ſubſtance ſo well known und
the name of *glaſs*." See CHEMISTRY, *Inde*
GLASS, § IV. 1—4; and GLASS-MAKING, *Sect.*

" Silica is not acted on by ammonia, wheth
in the gaſeous or liquid ſtate. There is a ſtro
affinity between barytes and ſilica. When bary
water is poured into ſilicated potaſs, the t
earths are precipitated in a ſtate of combinati
They may be alſo combined by heat. The co
pound is greeniſh." Dr THOMSON adds a ta
of the effect of heat on various mixtures of the
from Mr KIRWAN's experiments, for which
refer to his work. " There is alſo a ſtrong a
nity between ſilica and lime, which may be co
bined by heat, and form a glaſs, in equal quan
ties. Equal parts of magneſia and ſilica melt i
a white enamel, when expoſed to the moſt viol
heat which can be produced. There is a ſtro
affinity between alumina and ſilica. When bak
in 160° Wedg. they become very hard, but do
fuſe. But when expoſed to a very ſtrong heat, th
are converted into a kind of opaque glaſs or e
mel. PORCELAIN, ſtone wares, bricks, tiles, &
are compoſed chiefly of this compound. Eq
parts of lime, magneſia, and ſilica, may be mel
into a greeniſh coloured glaſs, hard enough
ſtrike fire with ſteel. Silica and alumina may a
be combined with barytes or ſtrontian by he
The mixture melts readily into a greeniſh colou
porcelain.

" From the experiments of ACHARD and K
WAN, we learn, that in mixtures of lime, ſili
and alumina, when the lime exceeds, the mixt
is fuſible into glaſs or porcelain. Equal parts
theſe and magneſia melt into glaſs. Silica diff
from all the other earths, in not combining w
any acid, except the fluoric, phoſphoric, borac
and muriatic.

" Silica is one of the moſt important of
earths. It is the chief ingredient of thoſe ſto
which conſtitute the baſis of this terreſtrial glo
It is an eſſential ingredient in mortar, and all ki
of ſtoneware and glaſs."—On theſe accounts,
as little was ſaid upon it under the article CH
MISTRY, we have enlarged the more upon its
rious properties in this place. We now proc
to reſume our quotations from Dr THOMSO
Syſtem of Mineralogy, Vol. III. p. 429.

CHAP. IV. " CLASS I. EARTHS *and* STONES

" THIS claſs may be divided into three orde
The firſt comprehends all chemical combinati
of earths with each other; the 2d order, che
cal combinations of earths with acids; and the
mechanical mixtures of earths and ſtones. All
minerals belonging to the firſt order exhibit
ſame homogeneous appearance to the eye,
they were ſimple bodies. I ſhall, therefore,
the 1ſt order *ſimple*; the 2d order may be diſt
guiſhed by the epithet of *ſaline*; and the 3d
that of *aggregates*; becauſe moſt of the mine
belonging to it conſiſt of various *ſimple ſtones*,
mented as it were together.

" OR

"Order I. Simple Stones.

"Cronstedt divided this order into 9 genera, correſponding to 9 earths; one of which, he thought, compoſed the ſtones arranged under each genus. The names of his genera were, *calcareæ, ſiliceæ, granatinæ, argillaceæ, micaceæ, fluores, aſbeſtinæ, zeolithicæ, magneſiæ*. All his earths were afterwards found to be compounds, except the 1ſt, 2d, 4th, and 9th. Bergman, therefore, in his *Sciagraphia*, publiſhed in 1782, reduced the number of genera to 5; which was the number of primitive earths known when he wrote. Since that period 5 new earths have been diſcovered. Accordingly, in the lateſt ſyſtems of mineralogy, the genera of this order are proportionally increaſed†. Each genus is named from an earth, and they are arranged in the neweſt Wernerian ſyſtem, as follows: 1. *Jargon*; 2. *Siliceous*; 3. *Glucina*; 4. *Argillaceous*; 5. *Magneſian*; 6. *Calcareous*; 7. *Barytic*; 8. *Stontian* genius†.

"Mr Kirwan, in his very valuable ſyſtem of Mineralogy, has adopted the ſame genera. Under each genus, thoſe ſtones are placed, which are compoſed chiefly of the earth which gives a name to the genus, or which at leaſt are ſuppoſed to poſſeſs the characters which diſtinguiſh that earth.

"A little conſideration will be ſufficient to diſcover, that there is no natural foundation for theſe genera. Moſt ſtones are compoſed of 2, 3, or even 4, ingredients; and, in many caſes, the proportion of two or more of theſe is nearly equal. Now under what genus ſoever ſuch minerals are arranged, the earth which gives it a name muſt form the ſmalleſt part of their compoſition. Accordingly, it has not been ſo much the chemical compoſition, as the external character, which has guided the nimeralogiſt in the diſtribution of his ſpecies. The genera cannot be ſaid properly to have any character at all, nor the ſpecies to be connected by any thing elſe than an arbitrary title. This defect, which muſt be apparent in the moſt valuable ſyſtems of mineralogy, ſeems to have ariſen chiefly from an attempt to combine together an artificial and natural ſyſtem. I have ventured to form new genera for this order, according to the following rules:

"The only ſubſtance, which enter into the minerals belonging to this order, in ſuch quantity as to deſerve attention, are the following: *Alumina, Silica, Magneſia, Lime, Barytes, Glucina, Zirconia, Yttria, Oxide of Iron, Oxide of Chromum, Oxide of Nickel, Potaſs*." The Doctor might have added *Water*, the ſymbol of which (W) he alſo uſes.

"All thoſe minerals, which are compoſed of the *ſame* ingredients, I arrange under the ſame genus. According to this plan, there muſt be as many genera as there are varieties of combinations of the above ſubſtances exiſting in nature. The varieties in the proportion of the ingredients conſtitute ſpecies. I have not impoſed names upon theſe genera‡, but, in imitation of Bergman, have denoted each by a ſymbol. This ſymbol is compoſed of the firſt letter of every ſubſtance, which enters in any conſiderable quantity into the compoſition of the minerals arranged under the genus denoted by it. Thus, ſuppoſe the minerals of a genus to be compoſed of *alumina, ſilica*, and *oxide of iron*, I denote the genus by the ſymbol *aſi*. The letters are arranged according to the proportion of the ingredients; that which enters in the greateſt proportion being put firſt, and the others in order: Thus the genus *aſi* is compoſed of a conſiderable proportion of alumina, of a ſmaller proportion of ſilica, and leaſt of all of iron. By this contrivance, the ſymbol of a genus contains, within the compaſs of a few letters, a pretty accurate deſcription of its nature and character. Where the proportions of the ingredients vary in the ſame genus ſo much, that the letters which conſtitute its ſymbol change their place, I ſubdivide the genus into parts; and whenever the minerals belonging to any genus become too numerous, advantage may be taken of theſe ſubdiviſions, and each of them may be formed into a ſeparate genus. At preſent this ſeems unneceſſary.

"The following is a view of the different genera belonging to this order, denoted each by its ſymbol. Every genus is followed by the ſpecies included under it; and the whole are in the order which I mean to follow in deſcribing them:

"I. A. 1. Sapphire: 2. Corundum: 3. Native Alumina.

II. S. 1. Quartz; 2. Flint; 3. Opal; 4. Pitchſtone; 5. Chryſopraſium.

III. L. Native Lime.

IV. Amc. Ruby.

V. Aim. Ceylanite.

VI. i. As. 1. Topaz; 2. Sommite; 3. Shorlite. ii. Sa. 4. Rubellite; 5. Hornſlate; 6. Hornſtone; 7. Chalcedony; 8. Jaſper; 9. Tripoli.

VII. i. Asi. 1. Micarell; 2. Shorl; 3. Granatite. ii. Sal. 4. Tourmaline; 5. Argentine Feiſpar; 6. Mica; 7. Talc; 8. Baſaltine; 9. Hornblende; 10. Obſidian; 11. Petrilite; 12. Felſite.

VIII. Snaw. Pimelite.

IX. Sap. 1. Felſpar; 2. Lepidolite; 3. Leucite; 4. White Chlorite.

X. Sag. 1. Emerald; 2. Euclaſe.

XI. Sab. Staurolite.

XII. i. Asl. 1. Chryſoberyl. ii. Sal. 2. Hyalite; 3. Edelite;

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† *They do not ſeem to be* proportionally *increaſed, for* twice five *is* ten, *but here we have only* eight genera. *There is evidently a miſtake or omiſſion of* 2: viz. Yttria *and* Auguſtina.

‡ *Perhaps it would have been an additional improvement, if Dr* Thomson *had given theſe genera names. Great as Sir* T. Bergman's *name and authority doubtleſs are, we ſuſpect, that, by the introduction of* ſymbols *inſtead of names, he has not contributed much to the improvement of the Science. Symbols have at beſt a barbarous appearance, and ſeveral of them, conſiſting wholly of conſonants, defy the lingual organs to pronounce them. Every advantage that ſymbols can poſſibly afford might be obtained by retaining the letters, but making* words *of them by prefixing or ſubjoining a part or the whole of the Latin word,* Lapis, *or the* Greek Λιθος, *a ſtone; thus*, Lapiſa, Lithoſos, Amelapis, Lithaim, Lithomſai, Lithozs, Lithyſi, &c. *The botanical arrangements, both natural and artificial, invented by the great Linnæus, would never have been ſo rapidly and univerſally adopted, had he only arranged his genera under ſymbols, inſtead of giving them expreſſive names. Till ſome farther improvement, however, be made, Dr Thomſon's ſymbols muſt be very uſeful.*

3. Edelite; 4. Scapolite. iii. Sawl. 5. Zeolite; 6. Stilbite; 7. Chabaſie; 8. Analcime. iv. Sla. 9. Lazulite.

XIII. Sali. 1. Garnet; 2. Pyrop; 3. Melanite; 4. Thummerſtone: 5. Prechnite; 6. Thalite; 7. Skorza.

XIV. i. Ams. 1. Cyanite. ii. Msa. 2. Serpentine.

XV. Msai. 1. Potſtone; 2. Chlorite.

XVI. Slam. Siliceous Spar.

XVII. Samli. Argillite.

XVIII. Slacmi Smaragdite.

XIX. Sm. 1. Kiffekill; 2. Steatites.

XX. Msi. 1. Chryſolite; 2. Jade.

XXI. Sml. 1. Aſbeſtus; 2. Aſbeſtinite.

XXII. i. Silm. 1. Augite; 2. Aſbeſtoid. ii. Smil. 3. Actinolite; 4. Idocraſe.

XXIII. Sl. 1. Shiſtoſe hornſtone; 2. Tremolite.

XXIV. Zs. Zircon.

XXV. Ysi. Gadolinite.

“ Genus I. A.

“ *Species* 1. Sapphire. *Oriental Ruby, Sapphire,* and *Topaz.* *Rubis d'Orient* of Rome de Liſle. *Teleſia* af Hauy. *Sapphire* of Delametherie.

“ Three ſtones, diſtinguiſhed by their colour, have been long held in high eſtimation on account of their hardneſs and beauty. Theſe were the *ruby, ſapphire,* and *topaz;* and the epithet *oriental* was added to diſtinguiſh them from other three, of the ſame names and colours, but inferior in hardneſs and beauty. Mineralogiſts conſidered theſe ſtones as three diſtinct ſpecies,” (See Ruby, Sapphire, and Topaz.) “ till Rome De Liſle obſerved, that they agreed in the form of their cryſtals, hardneſs, and moſt other properties. Accordingly, they were made one ſpecies by Rome De Liſle, Kirwan, and others. Rome de Liſle named the ſpecies *ruby;* Hauy invented the word *teleſia;* but *ſapphire* has been appropriated to it by Werner and Delamatherie, and adopted by mineralogiſts in general.

“ The ſapphire is found in the Eaſt Indies, eſpecially in Pegu and Ceylon; and is moſt commonly cryſtalliſed. The cryſtals are of no great ſize: Their *primitive* form, according to Mr Hauy, is a regular ſix-ſided priſm, diviſible in directions parallel both to its baſes and its ſides; and conſequently giving for the form of its primitive nucleus, or of its *integrant molecule,* an equilateral three-ſided priſm. The moſt uſual variety is a dodecahedron, in which the teleſia appears in the form of two very long ſlender ſix-ſided pyramids, joined baſe to baſe. The ſides of theſe are iſoſceles triangles, having the angle at their vertex 22° 54′, and each of theſe at the baſe 78° 48′. The inclination of a ſide of one pyramid to a contiguous ſide of the other is 139° 54′. In ſome ſpecimens the ſummits of the pyramids are wanting; ſo that the cryſtal has the appearance of a ſix-ſided priſm, ſomewhat thicker in the middle than in the extremities. The 3 alternate angles at each extremity of this priſm are alſo ſometimes wanting, and a ſmall triangular face inſtead of them, which renders the baſes of the ſuppoſed priſm nine-ſided. The inclination of each of theſe ſmall triangles to the baſe is 122° 18′.

“ The texture of the ſapphire is foliated, and the joints are parallel to the baſe of the priſm. Its luſtre varies from 3 to 4. Tranſparency uſuall 3 or 4, ſometimes only 2. It cauſes only a ſingl refraction. Specific gravity from 4 to 4·288 Hardneſs from 15 to 17. It is either colourleſ or red, yellow, or blue. Theſe colours induce lapidaries to divide the ſpecies into 3 varieties.

“ *Variety* 1. Red. *Oriental Ruby.* Colour ca mine red, ſometimes verging towards viole Sometimes various colours appear, as red an white, red and blue, orange red. Hardneſs 1 Specific gravity 4·288.

“ *Var.* 2. Yellow. *Oriental Topaz.* Colour gol en yellow: Tranſparency 4: Hardneſs 15 : Sp cific gravity 4·0106.

“ *Var.* 3. Blue. *Oriental Sapphire.* Colour Be lin blue, often ſo very faint, that the ſtone appea almoſt colourleſs. Tranſparency 3, 4, 2. Har neſs 17. Specific gravity 3·991 to 4·083. This not probably the ſapphire of the ancients. It w diſtinguiſhed by gold coloured ſpots, none which are to be ſeen in that of the moderns. ſpecimen, analyſed by Klaproth, contained 100 parts, 98·5 alumina, 1 oxide of iron, and lime.

“ The colouring matter of all theſe varieties iron in different ſtates of oxidation.

“ *Species* 2. Corundum. *Corundum* of Gmeli *Adamantine Spar* of Klaproth and Kirwan. *Cori don* of Hauy. *Corivindum* of Woodward. Th ſtone, though known to Woodward, may be ſa to have been firſt diſtinguiſhed by Dr Black. 1768, Mr Berry, a lapidary in Edinburgh, recei ed a box of it from Dr Anderson of Madraſ Dr Black aſcertained that theſe ſpecimens diffe ed from all the ſtones known to Europeans. Fro its hardneſs its was named *Adamantine Spar.* M Greville of London obtained ſpecimens of in 1784, from India, and diſtributed them amo the moſt eminent chemiſts to be analyſed. It found in Indoſtan, near the Cavery, S. of Madra in a rocky matrix, of conſiderable hardneſs, pa taking of the nature of the ſtone. It occurs al in China, and a ſubſtance, like the matrix, h been found in Tiree, one of the Weſtern Iſlan of Scotland.” See Chemistry, *Index*.

“ The Corundum is uſually cryſtallized. primitive form, diſcovered by Hauy and Cou Bournon is a rhomboidal parallelopiped, who ſides are equal rhombs, with angles of 86° a 94°; or whoſe diagonals are to each other $\sqrt{17}$ to $\sqrt{15}$; which is nearly the ſame. T moſt common variety is the regular ſix-ſid priſm, the alternate angles of which are ſometim wanting, and the triangular faces, which occu their place, are inclined to the baſe at an ang of 122° 34′. Sometimes the corundum is cryſt lized in the form of a ſix-ſided pyramid, the ap of which is generally wanting. The texture is f liated, and the natural joints are parallel to t faces of the primitive rhomboidal parallelopip Luſtre in the direction of the laminæ, 3; wh broken acroſs, 0. Opaque, except in very th pieces. Hardneſs 15. Specific gravity from 3·7 to 4·180. Colour grey, often with ſhades of bl and green. According to Klaproth, the coru dum of India is compoſed of 89·5 alumina, 5·5 lica, 1·25 oxide of iron. A ſpecimen from Chi of 84 alumina, 6·5 ſilicia, 7·5 oxide of iron.

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“ *Species* 3. Native ALUMINA. This ſubſtance has been found at Halle in Saxony, in compact kidney-form maſſes. Its conſiſtence is earthy: Luſtre 0: Opaque: Hardneſs 4: Brittle: Specific gravity moderate. Feels ſoft but meagre: Adheres very ſlightly to the tongue: Stains very ſlightly: Colour pure white: Does not readily diffuſe itſelf in water. It conſiſts of pure alumina, mixed with a ſmall quantity of carbonat of lime, and ſometimes of ſulphat of lime.” See CHEMISTRY, *Index*, and CLAY.

“ GENUS II. S.

“ *Species* 1. QUARTZ.—This ſtone, which is very common in moſt mountainous countries, is ſometimes cryſtallized and ſometimes amorphous. The primitive form of its cryſtals, according to Mr Hauy, is a rhomboidal parallelopiped; the edges of whoſe rhombs are 93° 22′ and 86° 38′; ſo that it does not differ much from a cube. The moſt common variety is a dodecahedron, compoſed of two ſix-ſided pyramids applied baſe to baſe, whoſe ſides are iſoſceles triangles, having the angle at the vertex 40°, and each of the angles at the baſe 70°; the inclination of a ſide of one pyramid to the contiguous ſide of the other is 104°. There is often a ſix-ſided priſm interpoſed between the two pyramids, the ſides of which always correſpond with thoſe of the pyramids. For a deſcription and figure of the other varieties of quartz cryſtals, and for the law which they follow in cryſtallizing, we refer the reader to ROME DE LISLE, (*Cryſt.* ii. 71.) and Mr HAUY, (*Mem. Par.* 1786. p. 78.)

“ The texture of quartz is more or leſs foliated: Fracture conchoidal or ſplintery: Luſtre from 3 to 1: Tranſparency 4 to 1: In ſome caſes it is opaque. It cauſes a double refraction. Hardneſs from 10 to 11: Spec. gravity from 2·64 to 2·67, and in one variety 2·691. Its colour is exceedingly various, which has induced mineralogiſts to divide it into numerous varieties. Of theſe the following are the chief:

“ 1. Pure colourleſs, perfectly tranſparent cryſtallized quartz, having much the appearance of artificial cryſtal, named ROCK CRYSTAL.

“ 2. Quartz leſs tranſparent, and with a ſplintery fracture, has uſually been named QUARTZ, and ſeparated from rock cryſtal. But there is no occaſion for this ſeparation.

“ 3. Blood red quartz; formerly called *Compoſtella hyacinth*, and by Hauy *quartz hematoide*. It owes its colour to oxide of iron. The mineral named *ſinople*, and conſidered as a variety of *jaſper*, has been diſcovered by DOLOMIEU to be merely this variety in an amorphous ſtate.

“ 4. Yellow quartz, called *Falſe Topaz*.

“ 5. Roſy red quartz, called *Bohemian ruby*.

“ For a fuller enumeration of theſe varieties, the reader is referred to *Smeiſſer's* and *Kirwan's Mineralogies*.” See alſo QUARTZ.

“ Pure quartz is compoſed entirely of ſilica, but ſome varieties are contaminated with metallic oxides, and with a ſmall quantity of other earths.

“ *Sp.* 2. ELASTIC QUARTZ. This ſingular ſtone is moderately elaſtic, and flexible in every direction. Texture earthy. Luſtre, 0 or 1. Hardneſs, 9. Brittle. Sp. gravity, 2·624. Colour greyiſh white. Phoſphoreſces when ſcraped with a knife in the dark. The ſpecimen analyſed by Klaproth contained 96·5 ſilica, 2·5 alumina, 0·5 oxide of iron.

“ *Sp.* 3. FLINT. *Pyromachus; Pierre a fuſil: Silex* of Hauy.—This ſtone, which has become ſo neceſſary in modern war, is found in pieces of different ſizes, and uſually of a figure more or leſs globular, commonly among chalk, and often arranged in ſome kind of order. In Saxony it is ſaid to be found cryſtallized in hexahedrons, compoſed of two low three-ſided pyramids applied baſe to baſe.” (See FLINT, § II. 1—4.)

“ Its texture is compact. Its fracture, ſmooth conchoidal; luſtre, external 0, the ſtones being always covered by a white cruſt; internal 1, inclining to greaſy. Tranſparency, 2; when very thin, 3. Hardneſs, 10 or 11. Sp. gravity from 2·58 to 2·63. Colour varies from honey yellow to blackiſh brown. Very brittle, and ſplits into ſplinters in every direction. Two pieces of flint rubbed ſmartly together phoſphoreſce, and emit a peculiar odour. When heated it decrepitates, and becomes white and opaque. A ſpecimen of flint, analyſed by KLAPROTH, contained 98 ſilica, 0·50 lime, 0·25 alumina, 0·25 oxide of iron, and 1 water. Another, by DOLOMIEU, was compoſed of 97 ſilica, 1 alumina and oxide of iron, and 2 water.

“ The white cruſt, with which flint is enveloped, conſiſts of the ſame ingredients, and alſo a little carbonat of lime. Dolomieu diſcovered, that water is eſſential to flint; for when it is ſeparated by heat the ſtone loſes its properties. The manufacture of gun-flints is chiefly confined to England and 2 or 3 departments in France.” (See FLINT, § II. 3.) “ The operation is exceedingly ſimple: a good workman will make 1000 flints in a day. The whole art conſiſts in ſtriking the ſtone repeatedly with a kind of mallet, and bringing off at each ſtroke a ſplinter ſharp at one end and thicker at the other. Theſe ſplinters are afterwards ſhaped, by laying the line, at which it is wiſhed they ſhould break, upon a ſharp iron inſtrument, and giving it ſmall blows with a mallet. During the whole operation, the workman holds the ſtone in his hand, or ſupports it on his knee.

“ *Sp.* 4. OPAL. This ſtone is found in many parts of Europe, eſpecially in Hungary, in the Crapaks near Czennizka. When firſt dug out of the earth it is ſoft, but hardens and diminiſhes in bulk by expoſure to the air. The ſubſtance in which it is found is a ferruginous ſandſtone. The opal is uſually amorphous. Its fracture is conchoidal, commonly ſomewhat tranſparent. Hardneſs from 6 to 10. Spec. gravity from 1·7 to 2·66. The lowneſs of its gravity, in ſome caſes, is aſcribed to accidental cavities which the ſtone contains. Theſe are ſometimes filled with drops of water. Some ſpecimens have the property of emitting various coloured rays, with a particular effulgency, when placed between the eye and the light. Opals which have this property are called by lapidaries *oriental*, and often by mineralogiſts *noble*. This property rendered the ſtone much eſteemed by the ancients. Opals acquire it by expoſure to the ſun.

" *Var.* .. Oriental or Noble.—Luſtre glaſſy, 3. Tranſparency, 3 to 2. Hardneſs, 6 to 8. Colour, uſually light bluiſh white, ſometimes yellow or green. When heated it becomes opaque, and ſometimes is decompoſed by the action of the atmoſphere. Hence it ſeems to follow that water enters eſſentially into its compoſition. A ſpecimen of this variety, analyſed by Klaproth, contained 90 ſilica, and 10 water.

" *Var.* 2. Semi-opal. Fracture imperfectly conchoidal. Luſtre glaſſy, 2. Tranſparency 2 to 3. Hardneſs 7 to 9. Colours very various; greys, yellows, reds, browns, greens, of different kinds. Specimens ſometimes occur with rifts: theſe readily imbibe water, and therefore adhere to the tongue. Some opals gradually became opaque, but recover their tranſparency when ſoaked in water, by imbibing that fluid. They are then called *Hydrophanes*, or *occuli mundi.*" See Hydrophanes and Lapis, N° 16.

" *Var.* 3. Cat's Eye. This variety comes from Ceylon, and is ſeldom ſeen by European mineralogiſts till it has been poliſhed. Mr Klaproth deſcribed a ſpecimen, which he received in its natural ſtate from Mr Greville of London. Its figure was nearly ſquare, with ſharp edges, a rough ſurface, and a good deal of brilliancy. Its texture is imperfectly foliated: luſtre greaſy, 2. Tranſparency 3 to 2: Hardneſs 10: Sp. gravity 2·56 to 2·66. Colour grey; with a tinge of green, yellow or white; or brown with a tinge of yellow or red. In certain poſitions it reflects a ſplendid white, as does the *eye of a cat;* hence the name. Two ſpecimens were analyſed by Klaproth: the 1ſt from Ceylon compoſed of 95 parts ſilica, 1·75 alumina, 1·50 lime, 0·25 oxide of iron: the other from Malabar, 94·5 ſilica, 2·0 alumina, 1·5 lime, 0·26 oxide of iron.

" *Sp.* 5. Pitchstone. *Menelites.* This ſtone, which occurs in different parts of Germany, France, &c. has obtained its name from ſome ſuppoſed reſemblance to *pitch.* It is moſt uſually in amorphous pieces of different ſizes; and it has been found alſo chryſtallized in ſix-ſided priſms, terminated by three-ſided pyramids. Its fracture is conchoidal and uneven, and ſometimes approaches the ſplintery. Luſtre greaſy, from 3 to 1: Tranſparency 2 to 1, ſometimes 0: Hardneſs 8 to 10: Exceedingly brittle; it yields even to the nail of the finger. Spec. gravity 2·049 to 2·39. Its colours are numerous, greyiſh black, bluiſh grey, green, red, yellow, of different ſhades. Sometimes ſeveral of theſe colours appear together. A ſpecimen of pitch-ſtone from Meſnilmontant near Paris, analyſed by Mr Klaproth, contained 85·5 ſilica, 11 air and water, 1 alumina, 0·5 iron, 0·5 lime and magneſia.

" *Sp.* 6. Chrysoprasium. This mineral is found in different parts of Germany, particularly near Koſemutz in Sileſia, always amorphous: Fracture either even, or inclining to ſplintery: Scarcely any luſtre: Tranſparency 2 to 3: Hardneſs 10 to 12: Sp. Gravity 2·479: Colour green. In a heat of 130° Wedg. it whitens and becomes opaque. A ſpecimen analyſed by Klaproth contained 96·16 ſilica, 1 oxide of nickel, 0·83 lime, 0·08 alumina, 0·08 oxide of iron.

" Genus III. L.

" *Sp.* 1. Native Lime. The exiſtence of pu uncombined lime in a native ſtate has been que tioned; but the evidence on which the belief its exiſtence is founded, is ſufficiently reſpectab to put it beyond doubt. Monnet affirms, th it exiſts in abundance in the mountains of Upp Auvergne, mixed however with a little oxide iron. Dr Falconer of Bath found a ſoft whi iſh mineral near that town, conſiſting partly pure lime capable of diſſolving ſulphur, and fro which lime-water may be made. I have been in formed by his ſon, Mr Thomas Falconer, that gentleman, who is at preſent" (1802) " collectin the minerals about Bath, has found it, thoug not in any great quantity." See Chemistry, *Index;* and Quick Lime.

" Genus IV. Amc.

" *Sp.* 1. Ruby. *Spinell* and *balaſs Ruby* of Kir wan; *Ruby* of Hauy; *Rubis ſpinelle octoedre* of D Liſle; *Spinellus* of Gmelin. This ſtone, whic comes from Ceylon, is uſually cryſtallized. Th form of its integrant particles is the tetrahedron The primitive form of its cryſtals is a regular oc tahedron, compoſed of two four-ſided pyramid applied baſe to baſe, each of the ſides of which i an equilateral triangle. In ſome caſes two oppo ſite ſides of the pyramids are broader than th other two; and ſometimes the edges of the oc tahedron are wanting, and narrow faces in thei place. For figures, deſcriptions, and varieties o theſe cryſtals, the reader is referred to *Romé De Liſle:* (*Cryſtall.* ii. 226.) and Abbe *Eſtner.* (Miner 73.) The texture is foliated: Luſtre 3: Tranſparency 3 to 4. It cauſes a ſingle refraction. Hardneſs 13: Sp. gravity 3·570 to 3·625. Colour red; if deep, the ruby is called *balaſs;* if pale roſy, *ſpinell.*" (See Ruby.) " According to Vauquelin it is compoſed of 86 alumina; 8·5 magneſia; 5·25 chromic acid. The ancients ſeem to have claſſed this ſtone among their hyacinths.

" Genus V. Aim.

" *Sp.* 1. Ceylanite. The mineral denominated *Ceylanite*, from the iſland of Ceylon, from which it was brought into Europe, had been obſerved by Romé De Liſle: but was firſt deſcribed by La Metherie, in the *Journ. de Phyſique*, for Jan. 1793. It is moſt commonly found in rounded maſſes, but ſometimes alſo cryſtallized. The primitive form of its cryſtals is a regular octahedron: It commonly occurs under this form, but more commonly the edges of the octahedron are wanting, and ſmall faces in their place. The fracture of the Ceylanite is conchoidal: Its luſtre glaſſy; nearly opaque, except when in very thin pieces: Hardneſs, 12: Sp. gravity from 3·7647 to 3·793: Colour of the maſs, black; of very thin pieces deep green. Powder, greeniſh grey. According to the analyſis of Descotils, it is compoſed of 68 parts alumina, 16 oxide of iron, 12 magneſia, and 2 ſilica.

" Genus VI. i. As.

" *Species* 1. Topaz. *Occidental Ruby, Topaz* and *Sapphire.* The name *Topaz* has been reſtricted by M. Hauy to the ſtones called by mineralogiſts *occidental ruby, topaz,* and *ſapphire;* which, agreeing in their cryſtallization and moſt of their properties, were arranged under one genus by Romé De Liſle. One variety of our *topaz* the ancients named *chryſolite*. The topaz is found in Saxony, Bohemia, Siberia, and Brazil, mixed with other minerals in granite rocks. It is commonly cryſtallized. The primitive form of its cryſtals is a priſm, whoſe ſides are rectangles and baſes rhombs, having their greateſt angles 124° 22′, and the integral molecule has the ſame form; and the height of the priſm is to a ſide of the rhomboidal baſe as 3 to 2. The different varieties of topaz cryſtals hitherto obſerved amount to 6. Five of theſe are eight-ſided priſms, terminated by four-ſided pyramids, wedge-ſhaped ſummits, or by irregular figures of 7, 13, or 15 ſides; the laſt variety is a twelve-ſided priſm, terminated by ſix-ſided pyramids wanting the apex. For theſe ſee Hauy's *Journ. de Min.* N° xxviii. 287. The texture of the topaz is foliated. Its luſtre from 2 to 4. Tranſparency from 2 to 4. It cauſes a double refraction: Hardneſs 12 to 14: Spec. gravity from 3·5311 to 3·564: The Siberian and Brazil topazes, when heated, become poſitively electrified on one ſide, and negatively on the other. It is infuſible by the blow-pipe. The yellow topaz of Brazil becomes red, when expoſed to a ſtrong heat in a crucible; that of Saxony becomes white by the ſame proceſs. This ſhews, that the colouring matter of theſe two ſtones is different. The colour of the topaz is various, which has induced mineralogiſts to divide it into the following varieties:

"1. *Red Topaz*, of a red colour, inclining to yellow; called *Brazilian* or *Occidental Ruby*.

"2. *Yellow Topaz*, of a golden yellow colour, ſometimes alſo nearly white; called *Occidental* or *Brazil Topaz*. The powder of this and the following variety cauſes ſyrup of violets to aſſume a green colour.

"3. *Saxon Topaz*, of a pale wine yellow colour, and ſometimes greyiſh white.

"4. *Aigue Marine* is of a bluiſh or pale green colour.

"5. *Occidental Sapphire* is of a blue colour and ſometimes white.

"A ſpecimen of white Saxon, analyzed by Vauquelin, contained 68 parts alumina, and 31 ſilica.

"*Sp.* 2. Sommite. *Hexagonal white ſhorl* of Ferber: *White hyacinth* of Somma. This ſtone was called *ſommite* by La Metherie; from the mountain *Somma*, where it was firſt found. It is uſually mixed with volcanic productions. It cryſtallizes in ſix-ſided priſms, ſometimes terminated by paramids. Colour white; Somewhat tranſparent: Cuts glaſs: Spec. gravity, 3·2741. Infuſible by the blow-pipe. According to Vauquelin, it is compoſed of 49 alumina, 46 ſilica, 2 lime, 1 oxide of iron.

"*Sp.* 3. Shorlite. This ſtone, which received its name from Mr Klaproth, is generally found in irregular oblong maſſes or columns, inſerted in granite. Its texture is foliated: Fracture uneven: Luſtre 2: Tranſparency 2 to 1: Hardneſs 9 to 10: Specific gravity 3·53: Colour greeniſh white, or ſulphur yellow, not altered by heat. According to Klaproth, it is compoſed of 50 parts alumina, and 50 ſilica.

"Gen. VI. ii. Sa.—*Sp.* 4. Rubellite. *Siberite* of Lermina. *Red ſhorl of Siberia. Daurite* of La Metherie. This ſtone is found in Siberia mixed with white quartz. It is cryſtallized in ſmall needles, which are grouped together, and traverſe the quartz in various directions. Texture fibrous: Fracture glaſſy, inclining to the conchoidal: Tranſparency 2; at the edges 3. Hardneſs 10: Brittle. Specific gravity 3·048. Colour crimſon, blood, or peach red. By expoſure to a red heat, it becomes ſnow white, but loſes none of its weight. It tinges ſoda blue, but does not melt with it. When heated, acquires the electricity of the tourmaline. According to the analyſis of Mr Bindheim, it is compoſed of 57 parts ſilica, 35 alumina, 5 oxides of iron and mangameſe. According to Lermina of 36 ſilica, 48 alumina, 3½ lime, and 9 oxide of manganeſe.

"*Sp.* 5. Hornslate. *Shiſtoſe Porphyry.* This ſtone, which occurs in mountains, is generally amorphous; but ſometimes alſo in columns. Structure ſlaty: Texture foliated. Fracture uneven and ſplintery; ſometimes approaching the conchoidal. Luſtre 0: Tranſparency 1 or 0: Hardneſs about 10: Spec. gravity from 2·512 to 2·7. Colour different ſhades of *grey*, from *aſh* to *bluiſh*, or *olive green*. Melts at 145° Wedgewood into an enamel. A ſpecimen, analyſed by Wedgewood, contained 73 ſilica, 23·9 alumina, 3·5 iron.

"*Sp.* 6. Hornstone. *Petroſilex. Chert.* This ſtone, which makes a part of many mountains, is uſually amorphous; but has been found cryſtallized by M. Beyer on Schneeberg. Its cryſtals are ſix-ſided priſms, ſometimes terminated by pyramids; hexahedrons, conſiſting of two three-ſided pyramids applied baſe to baſe; and cubes, or ſix-ſided plates. Its texture is foliated. Fracture ſplintery, and ſometimes conchoidal: Luſtre 0: Tranſparency 1 to 2. The cryſtals are ſometimes opaque: Hardneſs 7 to 9: Sp. gravity 2·532 to 2·653. Colour uſually dark blue: but occurs alſo grey, red, blue, green, and brown, of different ſhades. According to Kirwan, it is compoſed of 72 ſilica, 22 alumina, 6 carbonat of lime." See Petrosilex.

"*Sp.* 7. Chalcedony. This ſtone is found abundantly in many countries, particularly in Iceland and the Faro iſlands." (See Chalcedony.) "It is moſt commonly amorphous, ſtalactitical, or in rounded maſſes; but it occurs alſo cryſtallized in ſix-ſided priſms, terminated by pyramids, or more commonly in four or ſix-ſided pyramids, whoſe ſides are convex. Surface rough: Fracture more or leſs conchoidal: Luſtre 1: Somewhat tranſparent: Hardneſs 10 to 11. Spec. gravity 2·56 to 2·665: Not brittle. According to Bergman, the chalcedony of Faro is compoſed of 84 ſilica, and 16 alumina, mixed with iron.

"*Var.* 1. Common *Chalcedony*. Fracture even, inclining to conchoidal: Tranſparency 2 to 3; ſometimes 1. Its colours are various; moſt commonly greyiſh, with a tint of yellow, green, blue, or pearl; often alſo white, green, red, yellow, brown, black, or dotted with red. When ſtriped white and black, or brown alternately, it is called *onyx*; when ſtriped white and grey, it is called *chalcedonix*. Black or brown chalcedony, when held between the eye and a ſtrong light, appears dark red.

“ *Var.* 2. CARNELIAN. Fracture conchoidal: Tranſparency 3 to 1; often cloudy: Colours various ſhades of red, brown, and yellow. Several colours often appear in the ſame maſs. To this variety belong many of the ſtones known by the name of *Scotch Pebbles.*” See CARNELIAN, § 1, 2; and PEBBLE.

“ *Sp.* 8. JASPAR. This ſtone is an ingredient in the compoſition of many mountains. It occurs uſually in large amorphous maſſes, and ſometimes alſo cryſtallized in ſix-ſided irregular priſms. Its fracture is conchoidal: Luſtre from 2 to 0: Either opaque, or its tranſparency is 1: Hardneſs 9 to 10: Spec. gravity from 2·5 to 2·82. Colours various: When heated does not decrepitate. It ſeems to be compoſed of ſilica and alumina, and often alſo contains iron.” See JASPER, § I—III.

“ *Var.* 1. Common *Jaſper*. Specific gravity from 2·58 to 2·7. Its colours are different ſhades of white, yellow, red, brown, and green; often variegated, ſpotted, or veined, with ſeveral colours.

“ *Var.* 2. EGYPTIAN PEBBLE. This variety is found chiefly in Egypt. It uſually has a ſpheroidal or flat rounded figure, and is enveloped in a coarſe rough cruſt. It is opaque: Hardneſs 10: Specific gravity 1·564. It is chiefly diſtinguiſhed by the variety of colours, which always exiſt in the ſame ſpecimen, either in concentric ſtripes or layers, or in dots or dendritical figures. Theſe colours are different, browns and yellows, milk white and iſabella green; black alſo has been obſerved in dots

“ *Var.* 3. STRIPED JASPER. This variety is alſo diſtinguiſhed by concentric ſtripes or layers of different colours, yellow, browniſh, red, and green. It is diſtinguiſhed from the laſt variety by its occuring in large amorphous maſſes, and by its fracture, which is nearly even.

“ *Sp.* 9. TRIPOLI. This mineral is found ſometimes in an earthy form, but more generally indurated. Its texture is earthy: Fracture often ſomewhat conchoidal: Luſtre 0: generally opaque: Hardneſs 4 to 7: Specific gravity 2·080 to 2·529: Abſorbs water: Feels harſh dry. Hardly adheres to the tongue: Takes no poliſh from the nail: does not ſtain the fingers. Colour generally pale yellowiſh grey; alſo different kinds of yellow, brown and white.” (See TRIPOLI, N° 4.) “ It contains, according to HAASSE, 90 parts of ſilica, 7 alumina, and 3 of iron. A mineral of this ſpecies, analyſed by KLAPROTH, contained 66·5 ſilica, 7 alumina, 2·5 oxide of iron, 1·5 magneſia, 1·25 lime, 19 air and water.

“ GENUS VII. i. ASI.

“ *Sp.* 1. MICARELL. This name has been given by Mr Kirwan to a ſtone, which former mineralogiſts conſidered as a variety of MICA. It is found in granite. Its texture is foliated, and it may be ſplit into thin plates: Luſtre metallic, 3: Opaque: Hardneſs 6: Spec. gravity 2·980: Colour browniſh black. At 153° Wedg. it melts into a black compact glaſs, the ſurface of which is reddiſh. A ſpecimen, analyſed by Klaproth, contained 63 alumina, 29·5 ſilica, 6·75 iron.

“ *Sp.* 2. SHORL. No word has been uſed by mineralogiſts with leſs limitation than *ſhorl.*” (See SCHORL.) “ It was firſt introduced into mineralogy by CRONSTEDT, to denote any ſtone o a columnar form, conſiderable hardneſs, and ſpecific gravity from 3 to 3·4. This deſcriptio applied to a very great number of ſtones; and ſucceeding mineralogiſts, though they made th word more definite in its ſignification, left it ſtil ſo general, that under the deſignation of *ſhorl*,” (or *ſchorl*, as moſt of them ſpell it), “ almoſt 2 diſtinct ſpecies of minerals were included. M Werner firſt defined the word *ſhorl* preciſely, and reſtricted it to one ſpecies of ſtones. I uſe th word in his ſenſe. Shorl is found abundantly i mountains, either maſſive or cryſtallized in thre or nine-ſided priſms, often terminated by three ſided ſummits. The ſides of the cryſtals are longitudinally ſtreaked. Its texture is foliated: Fracture conchoidal: Luſtre 2: Opaque: Hardneſ 10: Sp. gravity 2·92 to 3·212: Colour black Streak grey. It does not become electric by heat When heated to redneſs, its colour become browniſh red; and at 127° Wedg. it is converte into a browniſh compact enamel. According t WIEGLEB, it is compoſed of 41·23 alumina, 34·16 ſilica, 20 iron, and 5·41 manganeſe.

“ *Sp.* 3. GRANATITE. *Staurotide* of Hauy *Pierre de Croix* of De Liſle. *Staurolithe* of Lametherie. I have adopted from Mr VAUQUELIN the term *Granatite* to denote this ſtone, becauſe al the other names are ambiguous, having been applied to another mineral poſſeſſed of very different properties. Granatite is found in Galicia in Spain, and Britanny in France. It is alway cryſtallized in a very peculiar form; two ſix-ſided priſms interſect each other, either at righ angles or obliquely. Hence the name *Croſs-ſtone*, by which it was known in France and Spain. M. Hauy has proved, that the primitive form o the granatite is a rectangular priſm, whoſe baſes are rhombs, with angles of 129½° and 50½°; and that the height of the priſm is to the greater diagonal of a rhomb as 1 to 6; and that its integrant molecules are triangular priſms ſimilar t what would be obtained by cutting the primitive cryſtal in two, by a plane paſſing vertically through the ſhorter diagonal of the rhomboidal baſe. From this ſtructure he has demonſtrated the law of the formation of the cruciform varieties. The colour of granatite is greyiſh or reddiſh brown: Specific gravity 3·2861: Hardneſs 12: Texture compact: Uſually opaque. According to the analyſis of Vauquelin, it is compoſed o 47·06 alumina, 30·59 ſilica, 15·30 oxide of iron, and 3 lime.

“ GEN. VII. ii. SAI. *Sp.* 4. TOURMALINE. This ſtone was firſt made known in Europe by ſpecimens brought from Ceylon; but it is now found frequently forming a part of the compoſition of mountains. It is either in amorphous pieces, or cryſtallized in three or nine-ſided priſms, with four-ſided ſummits. The primitive form of its cryſtals is an obtuſe rhomboid; that of its integrant particles an irregular tetrahedron. Its texture is foliated: fracture conchoidal: internal luſtre 2 to 3: Tranſparency 3 to 4; ſometimes only 2. Cauſes only ſingle refraction. Hardneſs 9 to 11: Spec. gravity 3·05 to 3·155: Colour brown, often ſo dark that the ſtone appears black; the brown has alſo ſometimes a tint of green, blue, red, or yellow. When heated to 212° Fahrenheit, it becomes electric; one of the ſummits of the cryſtal negatively, the other poſitively." (See ELECTRICITY, *Index.*) "It reddens when heated; and is fuſible *per ſe* with intumeſcence into a white or grey enamel. A ſpecimen of the tourmaline of Ceylon, analyſed by Vauquelin, was compoſed of 40 parts ſilica, 39 alumina, 12 oxide of iron, 4 lime, and 2·5 oxide of manganeſe.

"Sp. 5. ARGENTINE FELSPAR. This ſtone was diſcovered by Mr DODUN, in the black mountains of Languedoc. It is either amorphous or cryſtallized in rhomboidal tables, or ſix or eight-ſided priſms. Its texture is foliated: Fragments rectangular: Laminæ inflexible: internal luſtre 4: Tranſparancy 2: Colour white; two oppoſite faces of the cryſtals are ſilver white; two others dead white: Hardneſs of the ſilver laminæ 6, of the reſt 9: Brittle: Specific gravity 2·5. When the flame of the blow-pipe is directed againſt edges of the cryſtal, (ſtuck upon glaſs), it eaſily melts into a clear compact glaſs; but when the flame is directed againſt the faces, they preſerve their luſtre, and the edges alone ſlowly melt. According to the analyſis of DODUN it is compoſed of 46 ſilica, 36 alumina, and 16 oxide of iron. When this ſtone is expoſed to the atmoſphere it is apt to decay: Its ſurface becomes irideſcent, and at laſt changes to ochre yellow: Its ſpecific gravity is 2·3 or 2·212; and when breathed on, it gives out an earthy ſmell.

"Sp. 6. MICA. This ſtone forms an eſſential part of many mountains, and has been long known under the names of *glacies Mariæ*, and MUSCOVY GLASS. It conſiſts of a great number of thin laminæ adhering to each other, ſometimes of a very large ſize. Specimens have been found in Siberia, nearly 2½ yards ſquare. It is ſometimes cryſtallized: Its primitive form is a rectangular priſm, whoſe baſes are rhombs, with angles of 120 and 60°: Its integrant molecule has the ſame form. Sometimes it occurs in rectangular priſms, whoſe baſes alſo are rectangles, and ſometimes in ſhort ſix-ſided priſms; but it is much oftener in plates or ſcales of no determinate figure or ſize. Its texture is foliated: Its fragments flat: The lamellæ flexible, and ſomewhat elaſtic: Luſtre metallic, from 3 to 4: Tranſparency of the laminæ 3 or 4, ſometimes only 2: Hardneſs 6: Very tough: Often abſorbs water: Spec. gravity from 2·6546 to 2·9342. Feels ſmooth, but not greaſy: Powder feels greaſy. Colour, when pure, ſilver white or grey; but it occurs alſo yellow, greeniſh, reddiſh, brown, and black. Mica is fuſible by the blow-pipe into a white, grey, green, or black enamel; and this laſt is attracted by the magnet. Spaniſh wax rubbed by it becomes *negatively* electric. A ſpecimen of mica, analyſed by VAUQUELIN, contained 50 parts ſilica, 35 alumina, 7 oxide of iron, 1·35 magneſia and 1·33 lime. Mica has long been employed as a ſubſtitute for glaſs." (See MICA, § II.) "A great quantity of it is uſed in the Ruſſian marine for panes to the cabin windows."

"Sp. 7. TALC. This ſtone has a very ſtrong reſemblance to mica, and was long conſidered as a mere variety of that mineral." (See MICA.) "It occurs ſometimes in ſmall looſe ſcales, and ſometimes in an indurated form; but has not hitherto been found cryſtallized. Its texture is foliated: The lamellæ are flexible, but not elaſtic: Its luſtre from 2 to 4: Tranſparency 1 to 4: Hardneſs 4 to 6: Spec. gravity, when indurated, from 2·7 to 2·8. Feels greaſy: Colour moſt commonly whitiſh or greeniſh. Spaniſh wax rubbed with it becomes *poſitively* electric.

"*Var.* 1. SCALY TALC; *Talcite* of Kirwan, occurs under the form of ſmall ſcales, ſcarcely cohering: Luſtre 3 to 4: Very light: adheres to the fingers: when rubbed upon the ſkin, gives it a gloſs: Colour white, with a ſhade of red or green; ſometimes leek green.

"*Var* 2. COMMON TALC; *Venetian Talc;* often occurs in oblong modules: Luſtre nearly metallic, 4: Tranſparency 2 to 3; when very thin 4: Hardneſs 4 to 5: Colour white, with a ſhade of green or red; or apple green verging towards ſilver white: By tranſmitted light green.

"*Var.* 3. SHISTOSE TALC. Its ſtructure is ſlaty: Fracture hackly and long ſplintery: eaſily crumbles when rubbed in the fracture: external luſtre, 2 to 3; internal 1, but ſometimes, in certain poſitions, 3: Colour grey, with a ſhade of white, green or blue: becomes white and ſcaly when expoſed to the air.

"A ſpecimen of *common* TALC, analyſed by M. Chenevix, contained 48 parts ſilica, 37 alumina, 6 oxide of iron, 1·5 magneſia, 1·5 lime, and 5 water.

"*Sp.* 8. BASALTINE. *Baſaltic Hornblende of* Werner; *Actinote* of Hauy; ZILLERTITE of La Metherie. This ſtone is found commonly in baſaltic rocks;" (See BASALTES;) "hence its name impoſed by Mr Kirwan. It is cryſtallized, either in rhomboidal priſms, or ſix or eight-ſided priſms, terminated by three-ſided pyramids. The primitive form of its cryſtals is a rhomboidal priſm. Its texture is foliated: Fracture uneven: Luſtre 3: Tranſparency, when in very thin plates, 1: Hardneſs from 9 to 10: Sp. gravity 3·333: Colour black, dark green or yellowiſh green: Streak white. Tranſmits a reddiſh yellow light: Before the blow-pipe it melts into a greyiſh coloured enamel, with a tint of yellow. A ſpecimen, analyſed by Bergman, contained 58 ſilica, 27 alumina, 9 iron, 4 lime, and 1 magneſia.

"*Sp.* 9. HORNBLEND. *Amphibole* of Hauy." This ſtone enters into the compoſition of various mountains. Its texture is very conſpicuouſly foliated: fracture conchoidal: Fragments often rhomboidal; Luſtre 2: Opaque: Hardneſs 5 to 6: Tough: Spec. gravity 2·922 to 3·41: Colour black, blackiſh green, olive green, or leek green: Streak greeniſh. It neither becomes electric by friction nor heat. Before the blow-pipe, it melts into a black glaſs. A ſpecimen of black hornblende analyſed by Mr HERMANN, was compoſed of 37 ſilica, 27 alumina, 25 iron, 5 lime, 3 magneſia.

"*Sp.* 10. RESPLENDENT HORNBLENDE. There are two minerals, which WERNER conſiders as varieties of hornblende, and KIRWAN as conſtituting diſtinct ſpecies. Theſe, till future analyſes decide the point, I place here under the name of *reſplendent hornblende* given them by Mr Kirwan.

"*Var.* 1. *Labradore hornblende.* Texture curved, foliated. Luſtre, in ſome poſitions 0; in others metallic, and from 3 to 4: Opaque: Hardneſs 8 to 9: Specific gravity from 3·35 to 3·434. Colour, in moſt poſitions, greyiſh black; in others, it reflects a ſtrong iron grey, ſometimes mixed with copper red."—This ſeems to be the ſpecies already deſcribed under the name of *Labrador Stone.* See LABRADOR, N° 3.

"*Var.* 2. SHILLER SPAR. Texture foliated: Luſtre metallic, 4: Tranſparency, in thin pieces 1: Hardneſs 8 to 9: Spec. gravity 2·882: Colour green, often with a ſhade of yellow; alſo golden yellow. In ſome poſitions it reflects white grey or yellow. At 141° Wedgewood, hardened into a porcelain maſs. A ſpecimen, analyſed by GMELIN, was compoſed of 43·7 ſilica, 17·9 alumina, 23·7 iron, 11·2 magneſia. It has been found in the Hartz, ſtuck in a ſerpentine rock.

"*Sp.* 11. OBSIDIAN. *Iceland Agate.* This ſtone is found either in detached maſſes, or forming a part of the rocks which compoſe many mountains." (See ICELAND, § 7. i.) It is uſually inveſted with a grey or opaque cruſt. Its fracture is conchoidal. Its internal luſtre 3. Tranſparency 1: Hardneſs 10: Sp. gravity 2·348. Colour black or greyiſh black: when in very thin pieces, green. It melts into an opaque grey maſs. According to Bergman, it is compoſed of 69 ſilica, 22 alumina, and 9 iron.

"*Sp.* 12. PETRILITE. *Cubic Felſpar.* This ſtone is found in the maſs of mountains. It is amorphous: Texture foliated: Fracture ſplintery: Fragments cubic, or inclining to that form; their faces unpoliſhed: Luſtre 2: Tranſparency partly 2, partly 1: Hardneſs 9: Sp. gravity, 3·081: Colour reddiſh brown. Does not melt at 160° Wedgewood.

"*Sp.* 13. FELSITE. *Compact Felſpar.* This ſtone alſo forms a part of many mountains, and is amorphous: Texture ſomewhat foliated: Fracture uneven, approaching to ſplintery: Luſtre 1: Tranſparency ſcarce 1: Hardneſs 9: Colour azure blue; ſometimes brown and green: ſtreak white: Before the blow-pipe whitens and becomes rifty; but is infuſible *per ſe.*

"GENUS VIII. SNAW.

"*Sp.* 1 PIMELITE. The mineral diſtinguiſhed by this name is an earthy ſubſtance, of an apple green colour, which accompanies the chryſopraſe of Tkoſemutz. Klaproth has analyſed it, and found it compoſed of the following ingredients: 35 parts ſilica, 15·62 oxide of nickel, 5 alumina, 4·58 oxide of iron, 1·25 magneſia, and 37·91 water.

"GENUS IX. SAP.

"*Sp.* 1. FELSPAR. This ſtone forms the principal part of many of the higheſt mountains. It is commonly cryſtallized. Its primitive form, according to De Liſle, is a rectangular priſm, whoſe baſes are rhombs, with angles of 65° and 115°. Sometimes the edges of the priſm are wanting, and faces in their place; and ſometimes this is the caſe alſo with the acute angles of the rhomb. For a deſcription and figure of theſe and other varieties, ſee *De l Iſle Cryſtall.* ii. 465. *Mem. Par.* 1784: *and Pini, Sur de Nouv. Cryſt.*—Its texture is foliate
Its croſs fracture uneven: Fragments rhomboid
and commonly ſmooth, and poliſhed on 4 ſide
Luſtre of the poliſhed faces often 3: Tranſp
ency from 3 to 1: Hardneſs 9 to 10: Sp. gravi
2·437 to 2·7: gives a peculiar odour when rubb
It is made electric with great difficulty by fricti
Fuſible *per ſe* into a tranſparent glaſs. When cr
tallized, decrepitates before the blow-pipe.

"*Var.* 1. PURE FELSPAR. MOONSTONE.
dularia. This is the pureſt felſpar hitherto foun
It occurs in Ceylon and Switzerland; and was f
mentioned by Mr SAGE. Luſtre nearly 3: Tra
parency 2 to 3: Hardneſs 10: Sp. gravity 2·55
colour white; ſometimes with a ſhade of yello
green or red. Its ſurface is ſometimes irri
ſcent.

"*Var.* 2. *Common Felſpar.* Luſtre of the cr
fracture 0; of the fracture in the direction of t
laminæ, from 3 to 1: Tranſparency 2 to 1: C
lour moſt commonly fleſh red; but often blu
grey, yellowiſh white, milk white, browniſh y
low; and ſometimes blue, olive green, and ev
black.

"*Var.* 3. LABRADORE FELSPAR. This vari
was diſcovered on the coaſt of Labradore by
Wolfe; and ſince that time it has been found
Europe." (See LABRADOR, § 3.) "Luſtre 2 to
Tranſparency 1 to 3: Sp. gravity from 2·67
2·6925: Colour grey. In certain poſitions, ſpo
of it reflect a blue, purple, red, or green colour

"*Var.* 4. *Continuous Felſpar.* This variety m
probably belongs to a different ſpecies; but as
has not been analyſed, I did not think myſelf
liberty to alter its place. It is found in lar
maſſes: Texture earthy: Fracture uneven; ſom
times ſplintery. Luſtre 0: Tranſparency 1: Har
neſs 10: Sp. gravity 2·609: Colour reddiſh gr
reddiſh yellow, fleſh red.

"A ſpecimen of green felſpar from Sibe
analyſed by VAUQUELIN contained 62·83 ſili
17·02 alumina, 16 potaſs, 3 lime, and 1 oxide
iron.

"*Sp.* 2. LEPIDOLITE. *Lilalite.* This ſtone
firſt obſerved by Abbe PODA, and firſt deſcr
by DE BORN. Hitherto it has only been fo
in Moravia and Sudermania. It is mixed
granite in large amorphous maſſes." (See G
NITE.) "It is compoſed of thin plates, eaſil
parated like thoſe of mica. Luſtre pearly,
Tranſparency between 1 and 2: Hardneſs 4 t
not eaſily pulveriſed: Sp. gravity from 2·81
2·8549. Colour of the maſs violet blue; of
thin plates, ſilvery white: Powder white w
tint of red. Before the blow-pipe, it froths,
melts eaſily into a white ſemitranſparent ena
full of bubbles: Diſſolves in borax with effe
cence, and communicates no colour to it: E
veſces ſlightly with ſoda, and melts into a
ſpotted with red. With microcoſmic ſalt, it
a pearl-coloured globule. This ſtone was
called *Lilalite* from its colour, that of the
Klaproth, who diſcovered its component p
named it *Lepidolite.* It is compoſed of 53 ſ
20 alumina, 18 potaſs, 5 fluat of lime, 3 oxid
mangeneſe, 1 oxide of iron.

"*Sp.* 3. LEUCITE. VESUVIAN of Kir
White garnet of Veſuvius. This ſtone is uſ
fu

found in volcanic productions, and is very abundant near Veſuvius. It is always cryſtallized. The primitive form of its cryſtals is either a cube or a rhomboidal dodecahedron, and its integrant molecules are tetrahedrons; but the varieties hitherto obſerved are all polyhedrons. The moſt common has a ſpheroidal figure, and is bounded by 24 equal and ſimilar trapezoids: ſometimes the faces are 12, 18, 36, 54, and triangular, pentagonal, &c." (See *Hauy, Jour. de Min.* N° xxvii. fig.) "The cryſtals vary from the ſize of a pin-head to that of an inch. The texture is foliated: Fracture ſomewhat conchoidal: Luſtre 3; when in a ſtate of decompoſition 0: Tranſparency 3 to 2; when decompoſing 0: Hardneſs 8 to 10; when decompoſing 5 to 6: Sp. gravity 2·4648: Colour white, or greyiſh white; hence the name, from λευκος, *white*. Its powder cauſes ſyrup of violets to aſſume a green colour. It is compoſed, as Klaproth has ſhown, of 54 ſilica, 23 alumina, 21 potaſs.

"It was by analyſing this ſtone, that Klaproth diſcovered the preſence of potass in the mineral kingdom; which is not the leaſt important of the numerous diſcoveries of that accurate and illuſtrious chemiſt. Leucite is found ſometimes in rocks which have never been expoſed to volcanic fire; and Mr Dolomieu has rendered it probable, from the ſubſtances in which it is found, that the leucite of volcanoes has not been formed by volcanic fire, but that it exiſted previouſly in the rocks upon which the volcanoes have acted, and that it was thrown out unaltered in fragments of theſe rocks.

"*Sp.* 4. *White* Chlorite. This is a mineral compoſed of brilliant ſcales of a ſilvery white colour, very ſoft, and, when rubbed upon other bodies, leaving a powder reſembling the ſcales of fiſh. Smell argillaceous: Water in which it is agitated becomes alkaline. Before the blow-pipe, melts into a greeniſh white enamel. When calcined, loſes 0·06 of its weight, and becomes reddiſh. It is compoſed of 56 ſilica, 18 alumina, 8 potaſs, 3 lime, 4 oxides of iron and manganeſe, and 6 water.

"Genus X. Sag.

"*Sp.* 1. Emerald. This ſtone has hitherto been only found cryſtallized. The primitive form of its cryſtals is a regular ſix-ſided priſm; and the form of its integrant molecules is a triangular priſm, whoſe ſides are ſquares, and baſes equilateral triangles. The moſt common variety of its cryſtals is the regular ſix-ſided priſm, ſometimes with the edges of the priſm, or of the baſes, or the ſolid angles, or both wanting, and ſmall faces in their place. The ſides of the priſm are generally channelled. Its texture is foliated: Fracture conchoidal: Luſtre uſually from 3 to 4: Tranſparency 2 to 4: Cauſes a double refraction. Hardneſs 12: Sp. gravity 2·65 to 2·775: Colour green: Becomes electric by friction, but not by heat. Its powder does not phoſphoreſce when thrown on a hot iron. At 150° Wedg. it melts into an opaque coloured maſs. According to Dolomieu, it is fuſible *per ſe* by the blow-pipe.

"This mineral was formerly ſubdivided into two diſtinct ſpecies, the *emerald*, and *beryl*, or *aqua marina*. Hauy demonſtrated, that the emerald and beryl correſponded exactly in their ſtructure and properties; and Vauquelin found that they were compoſed of the ſame ingredients: henceforth, therefore, they muſt be conſidered as varieties of the ſame ſpecies.

"The variety formerly called *emerald* varies in colour from the pale to the perfect green. It comes chiefly from Peru; ſome ſpecimens have been brought from Egypt. Dolomieu found it in the granite of Elba. When heated to 120° Wedg. it becomes *blue*, but recovers its colour when cold. A ſpecimen analyſed by Vauquelin was compoſed of 64·6 ſilica, 14 alumina, 13 glucina, 3·5 oxide of chromium, 2·56 lime, and a moiſture or other volatile ingredient." See Emerald.

"The *beryl* is of a greyiſh green colour, and ſometimes blue, yellow, and even white; ſometimes different colours appear in the ſame ſtone." (See Beryl, § 2.) "It is found in Ceylon, different parts of India, Brazil, and eſpecially Siberia and Tartary, where its cryſtals are ſometimes a foot long. A ſpecimen analyſed by Vauquelin contained 69 ſilica, 13 alumina, and 16 glucina. It was by analyſing this ſtone that Vauquelin diſcovered the earth which he called *Glucina*." See Glucina.

"*Sp.* 2. Euclase. This ſtone, which has lately been brought from Peru by Dombey, was at firſt confounded with the emerald, on account of its green colour. The primitive form of its cryſtals is a rectangular priſm, whoſe baſes are ſquares. It is very brittle; ſufficiently hard to ſcratch quartz: Tranſparency conſiderable: Cauſes double refraction: Sp. gravity 3·0625: Fuſible by the blow-pipe into a white enamel. A ſmall ſpecimen, analyſed by Vauquelin, yielded 36 ſilica, 23 alumina, 15 glucina, and 5 oxide of iron. The loſs, 21, was probably owing to the preſence of an alkali.

"Genus XI. Sab.

"*Sp.* 1. Staurolite. *Andreolite* of La Metherie and Hauy. *Hyacinthe blanche cruciforme*, var. 9. of Rome de Liſle. This ſtone has been found at Andreaſberg in the Hartz. It is cryſtallized; and the form of its cryſtals has induced mineralogiſts to give it the name of *Croſs-ſtone*. Its cryſtals are two four-ſided flattened priſms, terminated by four-ſided pyramids, interſecting each other at right angles; the plane of interſection paſſing longitudinally through the priſms. Its texture is foliated: Luſtre waxy, 2: Tranſparency from 1 to 3: Hardneſs 9: Brittle: Specific gravity 2·355 to 2·361: Colour milk white. When heated ſtrongly, it loſes 0·15 or 0·16 parts of its weight, and falls into powder. It efferveſces with borax and microcoſmic ſalt, and is reduced to a greeniſh opaque maſs. With ſoda it melts into a frothy white enamel. When its powder is thrown on a hot coal, it emits a greeniſh yellow light.

"A ſpecimen, analyſed by Weſtrum, was compoſed of 44 ſilica, 20 alumina, 20 barytes, 16 water. Klaproth found the ſame ingredients, and nearly in the ſame proportions. A variety of ſtaurolite has been found only once, which has the following properties: Its luſtre is pearly, 2: Specific gravity 2·361: Colour browniſh grey. With ſoda it melts into a purpliſh and yellowiſh frothy enamel. It is compoſed, according to

Weſtrum, of 47·5 ſilica, 12 alum, 20 barytes, 16 water, and 4·5 oxides of iron and mangaueſe.

"Genus XII. i. Asl.

"*Sp.* 1. Crysoberyl. *Oriental Chryſolite* of jewellers. *Cymophane* of Hauy. *Chryſopal* of De La Metherie. Hitherto this ſtone has been found only in Brazil, the iſland of Ceylon, and near Nortſchink in Siberia. Werner firſt made it a diſtinct ſpecies, and gave it the name it now bears. It is uſually found in round maſſes about the ſize of a pea, but is ſometimes alſo cryſtallized. The primitive form of its cryſtals is a four-ſided rectangular priſm, whoſe height is to its breadth as √3 to 1, and to its thickneſs as √2 to 1. The only variety hitherto obſerved is an eight-ſided priſm, terminated by ſix-ſided ſummits. Two of the faces of the priſm are hexagons, 2 are rectangles, and 4 trapeziums. Sometimes two of the edges of the priſm are wanting, and ſmall faces in their place. Its texture is foliated: Laminæ parallel to the faces of the priſm: Luſtre 3 to 4: Tranſparency 3 to 4: Cauſes ſingle refraction: Hardneſs 12: Specific gravity from 3·698 to 3·7961: Colour yellowiſh geeen; ſurface ſparkling. It is infuſible by the blow-pipe *per ſe*, and with ſoda. A ſpecimen, analyſed by Klaproth, was compoſed of 71·5 alumina, 18 ſilica, 6 lime, 1·5 oxide of iron.

"Gen. XII. ii. Sal. *Sp.* 2. Hyalite. This ſtone is found frequently in trap. It occurs in grains, filaments, and rhomboidal maſſes: Texture foliated; fracture uneven, inclining to conchoidal: Luſtre glaſſy 2 to 3: Tranſparency 2 to 3: Sometimes, though ſeldom, it is opaque: Hardneſs 9: Specific gravity 2·11: Colour pure white: Infuſible at 150° Wedg. but yields to ſoda. According to Mr Link, it is compoſed of 57 ſilica, 18 alumina, 15 lime, and a very little iron. The name *hyalite* was impoſed by Werner, from υαλις, glaſs, and λιθος, a ſtone.

"*Sp.* 3. Ædelite. This ſtone has hitherto been found only in Sweden, at Moſſeberg and Ædelfors. From this laſt place Mr Kirwan named it *Ædelite*. It was firſt mentioned by Bergman. Its form is tuberoſe and knotty; texture ſtriated; ſometimes reſembles quartz. Luſtre from 0 to 1. Specific gravity 2·515 after it has abſorbed water. Colour light grey, often tinged red; alſo yellowiſh brown, yellowiſh green, and green. Before the blow-pipe it intumeſces and forms a frothy maſs. Acids convert it into a jelly. A ſpecimen from Moſſeberg, analyſed by Bergman, contained 69 ſilica, 20 alumina, 8 lime, and 3 water. A ſpecimen from Ædelfors yielded him 62 ſilica, 18 alumina, 16 lime, and 4 water.

"*Sp.* 4. Scapolite. This mineral has been found at Arendal in Norway. It is of a pearl white colour, and is cryſtallized in long rectangular priſms. Its ſpecific gravity is 3·680, and it is hard enough to ſcratch glaſs. According to Abelgaard, it is compoſed of 38 parts ſilica, 30 alumina, 14 lime, 1 oxide of iron, and 2 water.

"Genus XII. iii. Sawl. *Sp.* 5. Zeolite. This ſtone was firſt deſcribed by Cronstedt in the *Stockholm Tranſactions* for 1756. It is found ſometimes amorphous, and ſometimes cryſtallized. The primitive form of its cryſtals is a rectangular priſm, whoſe baſes are ſquares. The moſt common variety is a long four-ſided priſm terminated by low four-ſided pyramids. Its texture is ſtriated or fibrous: Luſtre ſilky, from to 1: Tranſparency from 2 to 4; ſometimes 1 hardneſs 6 to 8; ſometimes only 4. Abſorb water. Specific gravity 2·07 to 2·03. Colou white, often with a ſhade of red or yellow; ſometimes brick red, green, blue. When heated becomes electric, like the tourmaline. Befo the blow-pipe, it *froths*, emits a phoſphoreſcen light, and melts into a white ſemitranſparent enamel, too ſoft to cut glaſs, and ſoluble in acid In acids it diſſolves ſlowly and partially, withou effervescence; and at laſt, unleſs the quantity liquid be too great, it is converted into a jell A ſpecimen, analyſed by Vauquelin, containe 53 parts ſilica, 27 alumina, 9·46 lime, and 10 water. The name *zeolite* is given it from ζεω, *to fe ment*, and λιθος, *a ſtone*.

"*Sp.* 6. Stilbite. This ſtone was firſt forme into a diſtinct ſpecies by Mr Hauy. Formerl it was conſidered as a variety of zeolite. Th primitive form of its cryſtals is a rectangul priſm, whoſe baſes are rectangles. It cryſtalliz ſometimes in dodechadrons, conſiſting of a fou ſided priſm with hexagonal faces, terminated b four-ſided ſummits, whoſe faces are oblique parallelograms; ſometimes in ſix-ſided priſms, tw of whoſe ſolid angles are wanting, and a ſmall triangular face in their place. Its texture is foliate The laminæ are eaſily ſeparated from each othe and are ſomewhat flexible; luſtre pearly, 2 or 3 hardneſs inferior to that of zeolite, which ſcratche ſtilbite; brittle; ſpecific gravity, 2·500. Colou pearl white; powder bright white, ſometim with a ſhade of red. This powder, when expoſed to the air, cakes, and adheres as if it ha abſorbed water. It cauſes ſyrup of violets to a ſume a green colour. When ſtilbite is heate in a procelaine crucible, it ſwells up and aſſume the colour and ſemitranſparency of baked po celain. By this proceſs it loſes 0·185 of its weigh Before the blow-pipe it froths like borax, an then melts into an opaque white enamel: Henc the name given it by Hauy, *ſtilbite*, from στιλβω, *ſhine*. According to Vauquelin, it is compoſed 52 ſilica, 17·5 alumina, 9 lime, 18·5 water.

"*Sp.* 7. Chabasie. This mineral, which wa firſt ſeparated from the ſucceeding ſpecies, b Boſc D'Antic and Hauy, is found at Oberſtein Germany. It has a white colour, and laminate texture. The primitive form of its cryſtals is rhomboid ſlightly obtuſe. Specific gravity 2·117 Scarcely ſcratches glaſs.

"*Sp.* 8. Analcime. This ſtone, which was di covered by M. Dolomieu, is found cryſtallize in the cavities of lava. It was made a diſtinc ſpecies by M. Hauy. Mineralogiſts formerly confounded it with zeolite. The primitive form its cryſtals is a cube. It is ſometimes found cry tallized in cubes, whoſe ſolid angles are wanting and 3 ſmall triangular faces in place of each ſometimes in polyhedrons with 24 faces. It i uſually ſomewhat tranſparent. Hardneſs 8 ſcratches glaſs ſlightly. Specific gravity above 2 When rubbed, it acquires a ſmall degree of electricity, and with difficulty: Hence the name give it by Hauy, from αναλκις, *weak*. Before the blow

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pipe it melts without frothing into a white ſemi-tranſparent glaſs.

"GENUS XII. iv. SLA. *Sp.* 9. LAZULITE. This ſtone, which is found chiefly in the northern parts of Aſia, has been long known to mineralogiſts by the name of *Lapis Lazuli*." (See LAZULI.) "This term has been contracted into *Lazulite* by M. Hauy; an alteration which was certainly proper. Lazulite is always amorphous. Its texture is earthy; fracture uneven; luſtre opaque, or nearly ſo; hardneſs 8 to 9; ſp. gravity 2·76 to 2·945; colour blue, often ſpotted white from ſpecks of quartz, and yellow from particles of pyrites. It retains its colour at 100° Wedg. in a higher heat it intumeſces, and melts into a yellowiſh black maſs. With acids it efferveſces a little; and, if previouſly calcined, forms with them a jelly. MARGRAFF publiſhed an analyſis of lazulite in the *Berlin Mem.* for 1758. It has been ſince confirmed by Klaproth, who found a ſpecimen of it to contain 46 ſilica, 14·5 alumina, 28 carbonat of lime, 6·5 ſulphat of lime, 3 oxide of iron, and 2 water. From MORVEAU's experiments it appears, that the colouring matter of lazulite is ſulphuret of iron. The name is from the Arabian word *azul*, blue.

"GENUS XIII. SALE.

"*Sp.* 1. GARNET. This ſtone is found abundantly in many mountains." (See GARNET and GRANATE.) "It is uſually cryſtallized. The primitive form of its cryſtals is a dodecahedron, whoſe ſides are rhombs, with angles of 78° 31′ 44″, and 120° 28′ 16″. The inclination of the rhombs to each other is 120°. This dodecahedron may be conſidered as a four-ſided priſm, terminated by four-ſided pyramids. It is diviſible into 4 parallelopipeds, whoſe ſides are rhombs; and each of theſe may be divided into 4 tetrahedrons, whoſe ſides are iſoſceles triangles, equal and ſimilar to either of the halves into which the rhomboidal faces of the dodecahedron are divided by their ſhorter diagonal. The integrant molecules are ſimilar tetrahedrons. Sometimes the edges of the dodecahedron are wanting, and ſmall faces in their place; and ſometimes garnet is cryſtallized in polyhedrons, having 24 trapezoidal faces." (See Rome de Liſle ii. 322, and Hauy *Ann. de Chim.* xvii.) The texture of garnet, as BERGMAN firſt ſhowed, is foliated; its fracture commonly conchoidal; internal luſtre from 4 to 2; tranſparency 2 to 4; ſometimes only 1 or 0; cauſes ſingle refraction; hardneſs from 10 to 14. Specific gravity 3·75 to 4·188. Colour uſually red; often attracted by the magnet; fuſible *per ſe* by the blow-pipe.

"*Var.* 1. *Oriental Garnet*, ſuppoſed to be the *Carbuncle* (ανθραξ) of Theophraſtus. Internal luſtre 3 to 4; tranſparency 4; hardneſs 13 to 14; ſpecific gravity 4 to 4·188. Colour deep red, inclining to violet.

"*Var.* 2. *Common Garnet.* Fracture uneven, inclining to the conchoidal. Internal luſtre 2 to 3; tranſparency 3 to 0; hardneſs 10 to 11, ſometimes only 9; ſpec. gravity 3·75 to 4. Colour deep red inclining to violet; ſometimes verging towards black or olive; ſometimes leek green, brown, yellow.

"*Var.* 3. *Amorphous Garnet.* Structure ſlaty; luſtre 2; tranſparency 2 to 1; hardneſs 11 to 12; ſpecific gravity 3·89. Colour browniſh or blackiſh red. Found in Sweden, Switzerland, and the Eaſt Indies.

"A ſpecimen of oriental garnet, analyſed by Klaproth, contained 35·75 ſilica, 27·15 alumina, 36 oxide of iron, and 0·25 oxide of manganeſe. A ſpecimen of red garnet, analyſed by Vauquelin, contained 52 ſilica, 20 alumina, 17 oxide of iron, 7·7 lime.

"*Sp.* 2. PYROP. This mineral, which is found in Saxony and Bohemia, has been lately ſeparated from the garnet by Werner, and made a diſtinct ſpecies. It is never found cryſtallized, but only in round or angular fragments, uſually ſmall. Colour deep red, (hence the name πυρωψ), which paſſes to orange when expoſed to the ſun. Very hard. Specific gravity unknown. Fracture conchoidal and very brilliant.

"*Sp.* 3. MELANITE. This mineral was formerly confounded with the garnet. It is found at Fraſcati in Italy, ſtuck in lava. It is of a black colour, and cryſtallized like the garnet in a dodecahedron, having its edges truncated. It was analyſed by Vauquelin, and yielded 43 ſilica, 16 alumina, 20 lime, 16 oxide of iron, and 4 moiſture.

"*Sp.* 4. THUMMERSTONE. *Yanolite* of La Metherie: *Axinite* of Hauy. This ſtone was firſt deſcribed by SCHREBER, who found it near Balme d'Auris, in Dauphine, and named it *Shorl violé*. It was afterwards found near Thum in Saxony; whence Werner called it *Thummerſtone*. It is ſometimes amorphous; but more commonly cryſtallized. The primitive form of its cryſtals is a rectangular priſm, whoſe baſes are parallelograms, with angles of 101° 32′ and 78° 28′. The moſt uſual variety is a flat rhomboidal parallelopiped, with two of its oppoſite edges wanting, and a ſmall face inſtead of each. The faces of the parallelopiped are generally ſtreaked longitudinally. The texture of thummerſtone is foliated; its fracture conchoidal; luſtre 2; tranſparency, when cryſtallized, 3 to 4; when amorphous, 2 to 1. Cauſes ſimple refraction; hardneſs 10 to 9; ſpecific gravity 3·2956. Colour clove brown; ſometimes inclining to red, green, grey, violet, or black. Before the blow-pipe it froths like zeolite, and melts into a hard black enamel. With borax it exhibits the ſame phenomena, or even when ſimply heated at the end of a pincer. A ſpecimen, analyſed by Klaproth, contained 52·7 ſilica, 25·6 alumina, 9·4 lime, and 9·6 oxide of iron. A ſpecimen, analyſed by Vauquelin, contained 44 ſilica, 18 alumina, 19 lime, 14 oxide of iron, and 4 oxide of manganeſe.

"*Sp.* 5. PREHNITE. Though this ſtone had been mentioned by SAGE, Rome de Liſle, and other mineralogiſts, Werner was the firſt who properly diſtinguiſhed it from other minerals, and made it a diſtinct ſpecies. The ſpecimen which he examined was brought from the Cape of Good Hope by Col. PREHN; hence the name. It was found near Dunbarton by Mr GROTCHE; and has ſince been obſerved in other parts of Scotland. It is both amorphous and cryſtallized. The cryſtals are in groups, and confuſed: they ſeem to be four-ſided priſms with dihedral ſummits. Sometimes they are irregular ſix-ſided plates, and ſometimes flat rhomboidal parallelopipeds. Its texture is foliated: Fracture uneven: Internal luſtre pearly, ſcarcely 2: Tranſparency 3 to 2: Hardneſs 9 to 10: Brittle: Spec. gravity 2·6969. Colour apple green, or greeniſh grey. Before the blow-pipe it froths more violently than zeolite, and melts into a brown enamel. A ſpecimen, analyſed by Klaproth, was compoſed of 43·83 ſilica, 30·33 alumina, 18·33 lime, 5·66 oxide of iron, and 1·16 air and water. Mr Haſſenfratz found in another ſpecimen, 50 ſilica, 20·4 alumina, 23·3 lime, 4·9 iron, 0·9 water, 0·5 magneſia.

“ *Sp.* 6. Thallite. *Green Shorl* of Dauphiné, of De Liſle. *Delphinite* of Sauſſure. This ſtone is found in the fiſſures of mountains; and hitherto” (1802) “ only in Dauphiné, and on Chamouni in the Alps. It is ſometimes amorphous, and ſometimes cryſtallized. The primitive form of its cryſtals is a rectangular priſm, whoſe baſes are rhombs with angles of 114° 37′, and 65° 23′. The moſt uſual variety is an elongated four-ſided priſm, (often flattened), terminated by four-ſided incomplete pyramids; ſometimes it occurs in regular ſix-ſided priſms. The cryſtals are often very ſlender. Its texture appears fibrous: Luſtre inconſiderable: Tranſparency 2 to 3, ſometimes 4, ſometimes nearly opaque: Cauſes ſingle refraction: Hardneſs 9 to 10: Brittle: Spec. gravity 3·4529 to 3·46: Colour dark green, whence the name *thallite*, from θαλλος, *a green leaf:* Powder white or yellowiſh green, and feels dry. It does not become electric by heat. Before the blow-pipe, froths and melts into a black ſlag; with borax it melts into a green bead. A ſpecimen analyſed by M. Deſcotils contained 37 parts ſilica, 27 alumina, 17 oxide of iron, 14 lime, and 1·5 oxide of manganeſe.

“ *Sp.* 7. Skorza. This is a green coloured mineral, whoſe ſpecific gravity is 3·35. Klaproth found it compoſed of 43 parts ſilica, 21 alumina, 14 lime, 16·5 oxide of iron, and 0·25 oxide of manganeſe.

“ Genus XIV. i. Ams.

“ *Sp.* 1. Cyanite. *Sappare* of Sauſſure. This ſtone was firſt deſcribed by Mr Saussure the ſon, who gave it the name of Sappare. It is commonly found in granite rocks. The primitive form of its cryſtals is a four-ſided oblique priſm, whoſe ſides are inclined at an angle of 103°. The baſe forms with one ſide of the priſm an angle of 103°; with another, an angle of 77°. It is ſometimes cryſtallized in ſix-ſided priſms. Its texture is foliated: Laminæ long: Fragments long, ſplintery: Luſtre pearly, 2 to 3: Tranſparency of the laminæ 3: Cauſes ſingle refraction: Hardneſs 6 to 9: Brittle: Specific gravity from 2·092 to 3·622. Feels ſomewhat greaſy: Colour milk white, with ſhades of ſky or Pruſſian blue; hence the name *cyanite*, impoſed by Werner; ſometimes bluiſh grey, partly yellowiſh or greeniſh grey. Before the blow-pipe it becomes almoſt perfectly white, but does not melt. According to the analyſis of Saussure, it is compoſed of 66·92 alumina, 13·25 magneſia, 12·81 ſilica, 5·48 iron, and 1·71 lime. It has alſo been analyſed by Struvius and Hermann, who agree with Sauſſure as to the ingredients, but differ widely fro him and one another as to the proportions: Struvius ſtates it, 5·5 alumina, 30·5 magneſia, 51·5 ſil ca, 5 iron, 4 lime: Herman has it, 30 alumin 39 magneſia, 23 ſilica, 2 iron, and 3 lime.

“ Gen. XIV. ii. Msa. *Sp.* 2. Serpentin This ſtone is found in amorphous maſſes. I fracture is ſplintery: Luſtre 0: Opaque: Har neſs 6 to 7: Sp. gravity 2·2645 to 2·709: Fee ſoft, almoſt greaſy: Generally emits an earth ſmell when breathed upon. Its colours are v rious ſhades of green, yellow, red, grey, brow blue: commonly one or two colours form t ground, and one or more appear in ſpots or vei (See Serpentine). Before the blow-pipe it har ens and does not melt. A ſpecimen, analyſed M. Chevenix, contained 34·5 magneſia, 28 fi ca, 23 alumina, 4·5 oxide of iron, 0·5 lime, 10 water.

“ Genus XV. Mbai.

“ *Sp.* 1. Potstone. This ſtone is found neſts and beds, and is always amorphous. I ſtructure is often ſlaty: Texture undulatingly f liated: Luſtre from 1 to 3: Tranſparency 1 to ſometimes 2: Hardness 4 to 6: Brittle: Sp. gr vity from 2·8531 to 3·023: Feels greaſy: ſom times abſorbs water: Colour grey, with a ſha of green, and ſometimes of red or yellow; ſom times leek green; ſometimes ſpeckled with re *Potſtone* is not much affected by fire; and h therefore been made into utenſils for boiling w ter; hence its *name*. According to Wiegle the potſtone of Como contains 38 parts magneſi 38 ſilica, 7 alumina, 5 iron, 1 carbonat of lim and 1 fluoric acid.

“ *Sp.* 2. Chlorite. This mineral is an ingr dient in different mountains. It is ſometim amorphous, and ſometimes cryſtallized in oblon four-ſided, acuminated cryſtals. Its texture is f liated: Luſtre from 0 to 2: Opaque: Hardn from 4 to 6: ſometimes in looſe ſcales: Colo green.

“ *Var.* 1. *Farinaceous Chlorite:* compoſed ſcales ſcarcely cohering, either heaped togeth or inveſting other ſtones: Feels greaſy: Gives earthy ſmell when breathed on: Difficult to p veriſe: Colour graſs green; ſometimes greeni brown; ſometimes dark green inclining to blac Streak white. When the powder of chlorite expoſed to the blow-pipe, it becomes brown. B fore the blow-pipe farinaceous chlorite froths a melts into a dark brown glaſs; with borax forms a greeniſh brown glaſs.

“ *Var.* 2. *Indurated Chlorite.* This variety cryſtallized: Luſtre 1: Hardneſs 6: Feel meagr Colour dark green, almoſt black: Streak mou tain green.

“ *Var.* 3. *Slaty Chlorite:* Structure ſlaty: Fra ments flatted: Internal luſtre 1 to 2: Hardneſs Colour greeniſh grey, or dark green inclining black: Streak mountain green.

“ A ſpecimen of the firſt variety, analyſed Vauquelin, contained 43·3 oxide of iron, 26 lica, 15·5 alumina, 8 magneſia, 2 muriat of p aſs, and 4 water. A ſpecimen of the ſame yiel ed Mr Hoepfner 12·92 oxide of iron, 37·5 ſili 4·17 alumina, 43·75 magneſia, 1·66 lime. A ſp cimen of the 2d variety, analyſed by the ſa chemi chemiſt, contained 10·15 oxide of iron, 41·15 ſilica, 6·13 alumina, 39·47 magneſia, 1·5 lime, 1·5 air and water. On the ſuppoſition, that theſe analyſes are accurate, the enormous difference between them is a demonſtration, that chlorite is not a chemical combination, but a mechanical mixture.

" Genus XVI. Slam.

"Sp. 1. Silicious Spar. This ſtone has been found in Tranſylvania. It is cryſtallized in four or ſix-ſided priſms, channelled tranſverſely, and generally heaped together. Its texture is fibrous: Luſtre ſilky, 2: Colours white, yellow, green, light blue. According to Bindheim, it contains 51·1 ſilica, 21·7 lime, 6·6 alumina, 5 magneſia, 1·3 oxide of iron, 3·3 water." See Spar.

" Genus XVII. Samli.

Sp. 1. Argillite. *Argillaceous Shiſtus.* Common Slate. This ſtone conſtitutes a part of many mountains. Its ſtructure is ſlaty: texture foliated: Fracture ſplintery: Fragments often tabular: Luſtre moſt commonly ſilky, 2; ſometimes 0: Tranſparency from 0 to 1: Hardneſs from 5 to 8. Specific gravity from 2·67 to 2·88: Does not adhere to the tongue: gives a clear ſound when ſtruck: often imbibes water: Streak white or grey: Colour moſt commonly grey, with a ſhade of blue, green or black; ſometimes purpliſh, yellowiſh, mountain green, brown, bluiſh black; ſometimes ſtriped or ſpotted with a darker colour than the ground. It is compoſed, according to Kirwan, of ſilica, alumina, magneſia, lime, oxide of iron." (See Schistus.) " In ſome varieties the lime is wanting. Several varieties contain a conſiderable quantity of carbonaceous matter. See Slate.

" Genus XVIII. Slacmi.

" Sp. 1. Smaragdite. This ſtone was called *Smaragdite* by M. Sauſſure from ſome reſemblance it has to the emerald. Never cryſtallized: Texture foliated: eaſily divided into plates: Laminæ inflexible: Fracture even: Hardneſs 7: Spec. gravity 3: Colour in ſome caſes fine green; in others it has the grey colour and metallic luſtre of mica: It aſſumes all the ſhades between theſe two extremes. According to Vauquelin, it is compoſed of 50 parts ſilica, 13 lime, 11 alumina, 7·5 oxide of chromum, 6 magneſia, 5·5 oxide of iron, 1·5 oxide of copper.

" Genus XIX. Sm.

" Sp. 1. Kiffekil. Myrzen. Sea-froth. This mineral is dug up near Konie in Natolia, and employed in forming the bowls of Turkiſh tobacco pipes. The ſale of it ſupports a monaſtery of Derviſes eſtabliſhed near Konie. It is found in a large fiſſure 6 feet wide, in grey calcareous earth. The workmen aſſert, that it grows again in the fiſſure, and puffs itſelf up like froth. Hence the name *kiff-kill*, or rather *keff-kelli, clay-froth*, or *light clay*. This mineral, when freſh dug, is of the conſiſtence of wax; it feels ſoft and greaſy; its colour is yellow; its ſpecific gravity 1·6; when thrown on the fire it ſweats, emits a fetid vapour, becomes hard, and perfectly white. According to Klaproth, it is compoſed of 50·5 ſilica, 17·25 magneſia, 25 water, 5 carbonic acid, and 0·5 lime.

" Sp. 2. Steatites. Though this mineral was noticed by the ancients, little attention was paid to it by mineralogiſts, till Mr Pott publiſhed his experiments on it, in the *Berlin Memoirs* for 1747. It is uſually amorphous, but ſometimes cryſtallized in ſix-ſided priſms. Its texture is commonly earthy, but ſometimes foliated; Luſtre from 0 to 2; Hardneſs 4 to 7; Spec. gravity from 2·61 to 2·794; Feels greaſy; Seldom adheres to the tongue; Colour uſually white or grey; often with a tint of other colours; the foliated commonly green; does not melt *per ſe* before the blow-pipe.

" *Var.* 1. *Semi-indurated Steatites.* Texture earthy; Fracture ſometimes coarſe ſplintery; Luſtre 0; Tranſparency 0, or ſcarce 1; Hardneſs 4 to 5; Abſorbs water; takes a poliſh from the nail; Colour white, with a ſhade of grey, yellow or green; ſometimes pure white; ſometimes it contains dendritical figures; and ſometimes red veins.

" *Var.* 2. *Indurated Steatites.* Fracture fine ſplintery; often mixed with imperfectly conchoidal. External luſtre 2 to 1; internal 0; Tranſparency 2; often has the feel of ſoap; Abſorbs water; Colour yellowiſh or grey; often veined or ſpotted with deep yellow or red.

" *Var.* 3. *Foliated* or *Striated Steatites.* The texture of this variety is uſually foliated; ſometimes ſtriated; Fragments cubiform; Luſtre 3; Tranſparency 2 to 1; Hardneſs 6 to 7; Colour leek green, paſſing into mountain green or ſulphur yellow: Streak pale greeniſh grey. When heated to redneſs, it becomes grey; and at 147° Wedg. forms a grey porous porcelain maſs.

" A ſpecimen of Steatites, analyſed by Klaproth, contained 59·5 ſilica, 30·5 magneſia, 2·5 iron, and 5·5 water. A ſpecimen of white ſteatite, analyſed by M. Chenevix, contained 60 ſilica, 28·5 magneſia, 3 alumina, 2·5 lime, 2·25 iron.

" Genus XX. Msi.

" *Sp.* 1. Chrysolite. *Peridot* of the French. *Topaz* of the ancients. The name *Chryſolite* was applied, without diſcrimination, to a great variety of ſtones, till Werner defined it accurately, and confined it to that which the French chemiſts diſtinguiſh by the appellation of *peridot*. This ſtone is the Topaz of the ancients; their chryſolite is now called *topaz*. Chryſolite is found ſometimes in unequal fragments and ſometimes cryſtallized. The primitive form of its cryſtals is a right angled parallelopiped, whoſe length, breadth, and thickneſs, are as $5, \sqrt{8}, \sqrt{5}$. The texture is foliated; Fracture conchoidal; internal luſtre from 2 to 4. Tranſparency 4 to 2; Cauſes double refraction; Hardneſs 9 to 10; Brittle. Specific gravity from 3·265 to 3·45; Colour green. It is infuſible at 150°, but loſes its tranſparency, and becomes blackiſh grey. With borax it melts without effervescence into tranſparent glaſs of a light green colour. Infuſible with microcoſmic ſalt and fixed alkali.

" *Var.* 1. Common *Chryſolite*; Found in Ceylon, S. America and Bohemia, amidſt ſand and gravel; Luſtre 3 to 4; Tranſparency 3 to 3; Colour yellowiſh green, ſometimes verging to olive green; ſometimes to pale yellow.

" *Var.* 2. *Olive Chryſolite. Olivine* of Kirwan. Found commonly among traps and baſalts; ſometimes in ſmall grains, ſometimes in pretty large pieces; but it has not been obſerved in cryſtals: Luſtre 2 to 3: Tranſparency 3 to 2: Colour olive green.

" The 1ſt variety, according to Klaproth, is compoſed of 41·5 magneſia, 38·5 ſilica, and 19 oxide of iron According to Vauquelin, it is compoſed of 51·5 magneſia, 38 ſilica, and 9·5 oxide of iron. The 2d variety, according to Klaproth, is compoſed of 37·58 magneſia, 50 ſilica, 11·75 oxide of iron, 0·21 lime.

" *Sp.* 2. **JADE.** This ſtone was formerly called *lapis nephriticus*, and was much celebrated for its medical virtues." (See JADE, § 2; and LAPIS, N° 17.) " It is found in Egypt, China, America, and in the Siberian and Hungarian mountains; ſometimes adhering to rocks, and ſometimes in detached round pieces. Its ſurface is ſmooth; Fracture ſplintery: External luſtre 0, or ſcarce 1: Hardneſs 10: Not brittle: Spec. gravity from 2·95 to 2·9829; or according to Sauſſure, to 3·389: Feels greaſy: Looks as if it had imbibed oil: Colour dark leek green, or verging towards blue: in ſome prominencies inclining to greeniſh or bluiſh white. When heated it becomes more tranſparent and brittle, but it is infuſible *per ſe*. According to HOEPFNER, it is compoſed of 47 parts ſilica, 38 carbonat of magneſia, 9 iron, 4 alumina, and 2 carbonat of lime. This is the ſtone which the inhabitants of New Zealand make into hatchets and other cutting inſtruments.

" GENUS XXI. SMIL.

" *Sp.* 1. **ASBESTUS.** This mineral was well known to the ancients." (See ASBESTOS.) They even made a kind of cloth from one of the varieties, which was famous for its INCOMBUSTIBILITY. It is found abundantly in moſt mountainous countries, and no-where more abundantly than in Scotland. It is commonly amorphous; Texture fibrous; fragments often long ſplintery; Luſtre from 0 to 2; ſometimes 3, and then it is metallic; Tranſparency from 0 to 2; Hardneſs from 3 to 7; Spec. gravity from 2·7 to 0·6806; Abſorbs water; Colour uſually white or green; fuſible *per ſe* by the blow-pipe.

" *Var.* 1. *Common Aſbeſtus.* Luſtre 2 to 1; Tranſparency 1; Hardneſs 6 to 7: Specific gravity 2·577 to 2·7. Feels ſomewhat greaſy; Colour leek green; ſometimes olive or mountain green; ſometimes greeniſh or yellowiſh grey; Streak grey; powder grey.

" *Var* 2. *Flexible Aſbeſtus. Amiantus.* Compoſed of a bundle of threads ſlightly cohering." (See AMIANTHUS.) " Fibres flexible; Luſtre 1 to 2, ſometimes 3; Tranſparency 1 to 2, ſometimes 0; Hardneſs 3 to 4; Spec. gravity before it abſorbs water, from 0·9088 to 2·3134; after abſorbing water, from 1·5662 to 2·3803. Feels greaſy; Colour greyiſh or greeniſh white; ſometimes yellowiſh or ſilvery white, olive or mountain green, pale fleſh red, and mountain yellow.

" *Var.* 3. *Elaſtic Aſbeſtus. Mountain Cork.* This variety has a ſtrong reſemblance to common cork. Its fibres are interwoven. Luſtre commonly 0; Opaque; Hardneſs 4; Spec. gravity, before abſorbing water from 0·6806 to 0·9933; after it, from 1·2492 to 1·3492. Feels meagre; Yields to the fingers like cork, and is ſomewhat elaſtic. Colour white; ſometimes with a ſhade of red or yellow; ſometimes yellow or brown.

" A ſpecimen of the 1ſt variety from Dalecarlia, analyſed by Bergman, contained 63·9 ſilica, 16 carbonat of Magneſia, 12·8 carbonat of lime, 6 oxide of iron, 1·1 alumina. A ſpecimen of 2d *var* yielded 64 ſilica, 17·2 carbonat of magneſia, 13·9 carbonat of lime, 29·7 alumina, and 2·2 oxide of iron. A ſpecimen of 3d *var.* contained 56·2 ſilica 26·1 carbonat of magneſia, 12·7 carbonat of lime 3 iron, and 2 alumina. Twelve different ſpecimens of aſbeſtus, analyſed by BERGMAN, yielded the ſame ingredients, differing a little in their proportions.

" *Sp.* 2. **ASBESTINITE.** This ſtone is amorphous; Texture foliated or broad ſtriated; Luſtre ſilky, 3; Tranſparency 1 to 2; Hardneſs 5 to 6; ſpecific gravity from 2·806 to 2·880. Colour white, with ſhades of red, yellow, green or blue. At 150° Wedg. it melts into a green glaſs.

GENUS XXII. i. SILM.

" *Sp.* 1. **AUGITE.** PYROXEN of Hauy. VOLCANITE of De La Metherie. This mineral is only found in baſalt and lava. It is uſually in grains, or in ſmall cryſtals. The primitive form of its cryſtals is an oblique angled priſm, whoſe baſes are rhombs with angles of 92° 18′ and 37° 42′. It generally cryſtallizes in ſix or eight-ſided priſms, terminated by dihedral ſummits. Its texture is foliated; Hardneſs 9; Fracture imperfectly conchoidal and brilliant; uſually ſomewhat tranſparent. Colour deep green, or greeniſh black; powder greeniſh grey; Sp. gravity 3·47; Commonly attracted by the magnet; ſcarcely fuſible by the blow-pipe; With borax it melts into a yellowiſh glaſs, which appears red while it is hot. According to Vauquelin's analyſis, it is compoſed of 52 parts ſilica, 14·66 oxide of iron, 13·2 lime, 10 magneſia, 3·33 alumina, and 2 oxide of mangneſe.

" *Sp.* 2. **ASBESTOID.** This ſtone has obtained its name from its ſimilarity to common aſbeſtus. It is amorphous; its texture is foliated or ſtriated; its luſtre common or glaſſy, from 2 to 3; Tranſparency from 0 to 1; Hardneſs 6 to 7; Specific gravity from 3 to 3·31; Colour olive or leek green; when decompoſing, brown. Before the blow-pipe it melts *per ſe* into a brown globule. With borax it forms a violet-coloured globule, verging towards hyacinth. According to MACQUART's analyſis, it is compoſed of 46 ſilica, 20 oxide of iron, 11 lime, 10 oxide of mangneſe, and 8 magneſia.

" There is a *variety* which Kirwan calls *Metalliform Aſbeſtoid.* Its luſtre is ſemi-metallic, 3; Opaque; Hardneſs 8 to 9; Spec. gravity 3·356; Colour grey, ſometimes inclining to red.

" GEN. XXII. ii. SMIL. *Species* 3. **SHORLACEOUS ACTINOLITE.** *Rayonnante.* This ſtone cryſtallizes in four or ſix-ſided priſms, thicker at one end than the other; hence it has been called by the Germans *ſtrahlſtein*, i. e. *arrow-ſtone*. The cryſtals ſometimes adhere longitudinally. Fracture hackly; External luſtre glaſſy, 3 to 4; internal 1 to 2; Tranſparency 2 to 3; ſometimes 1; Hardneſs 7 to 10; Sp. gravity 3·023 to 3·45. Colour leek or dark green. This ſtone is often the matrix of iron, copper, and tin ores.

"*Sp.* 4. *Lamellar Actinolite.* This ſtone reſembles hornblende. It is amorphous: texture foliated: Luſtre various in different places: Tranſparency o or ſcarce 1: Sp. gravity 2·916: Colour dark yellowiſh, or greeniſh grey.

"*Sp.* 5. *Glaſſy Actinolite.* This ſtone is found amorphous, compoſed of fibres adhering longitudinally, or in ſlender four or ſix-ſided priſms: Texture fibrous: Fragments long ſplintery, ſo ſharp that they can ſcarcely be handled: external luſtre glaſſy or ſilky, 3 to 4; internal o: Tranſparency 1: Exceedingly brittle. Specific gravity [illegible] to 3·493: Colour leek green; ſometimes verging towards greeniſh or ſilver white; ſometimes ſtained with yellowiſh or browniſh red. According to Bergman it is compoſed of 72 ſilica, 12·7 carbonat of Magneſia, 6 carbonat of lime, 7 oxide of iron, and 2 alumina.

"*Sp.* 6. Idocrase. *Hyacinthine* of De la Metherie. *Sorlo Piceo* of Gioeni. This mineral is found in lava, and was formerly confounded with the hyacinth. Its colour is brown or greeniſh, and it is uſually cryſtalliſed in rectangular eight-ſided priſms, or rather four-ſided priſms with their edges truncated. The primitive form of its cryſtals is the cube. Spec. gravity from 3·39 to 3·409. Scratches glaſs: Luſtre 2: Fracture imperfectly conchoidal: Tranſparent: Cauſes double refraction. Before the blow-pipe melts into a yellowiſh glaſs. According to Stucke's analyſis, it is compoſed of 26·5 ſilica, 40·2 magneſia, 16·2 oxide of iron, and 16 lime.

"Genus XXIII. Sl.

"*Sp.* 1. Shistose hornstone. The ſtructure of this ſtone is ſlaty: Luſtre from o to 1: commonly opaque: Hardneſs 9 to 10: Specific gravity from 2·596 to 2·641: Colour dark bluiſh or blackiſh grey: Infuſible *per ſe*.

"*Var.* 1. *Siliceous ſhiſtus.* Commonly interſected by reddiſh veins of iron-ſtone: Fracture ſplintery: Luſtre o: Tranſparency from o to 1.

"*Var.* 2. *Baſanite,* or *Lydian Stone.* Commonly interſected by veins of quartz: Fracture even; ſometimes inclining to conchoidal: luſtre ſcarce 1: Hardneſs 10: Spec. gravity 2·596: Powder black: Colour greyiſh black. This, or a ſtone ſimilar to it, was uſed by the ancients as a touchstone. They drew the metal along the ſtone, and judged of its purity by the colour of the metallic ſtreak. On this account they called it *Βασανος, the trier.*" See Lydius Lapis.

"A ſpecimen of the firſt variety, analyſed by Wiegleb, contained 75 parts ſilica, 10 lime, 4·6 magneſia, 3·5 iron, and 5·2 carbon. This ſpecies is rather a mechanical mixture, than a chemical combination.

"*Sp.* 2. Tremolite. This mineral, found in the valley of *Tremola* in the Alps, has been deſcribed by Sauſſure, and ſeems to be very intimately connected with the minerals arranged under the 2d diviſion of the laſt genus. It is white, with a ſhade of green or red, and is either cryſtallized or in irregular maſſes. Its cryſtals are four-ſided oblique priſms, with angles of 67° and 113°. Sp. gravity from 2·9 to 3·2: Texture fibrous: Fracture conchoidal: Fibres rigid, ſo that it irritates the ſkin when rubbed againſt it: Cuts glaſs. Luſtre conſiderable: ſomewhat tranſparent: Fibres eaſily ſeparated, ſo that it appears ſoft. Phoſphoreſces when two pieces are rubbed in the dark againſt each other. Von Berchen and Struve have divided this ſpecies into 3 varieties: namely the *common, glaſſy, aſbeſtiform, ſilky,* and *grey.* A ſpecimen analyſed by Klaproth contained 65 parts ſilica, 38 lime, 0·5 magneſia, 0·5 oxide of iron, and 6 water and carbonic acid.

"Genus XXIV. Zs.

"*Sp.* 1. Zircon. *Jargon. Hyacinth.* This ſtone is brought from Ceylon, and found alſo in France, Spain, and other parts of Europe. It is commonly cryſtallized. The primitive form of its cryſtals is an octahedron, compoſed of 2 four-ſided pyramids, applied baſe to baſe, whoſe ſides are iſoſceles triangles. The inclination of the ſides of the ſame pyramid to each other is 124° 12': that of the ſides of one pyramid to thoſe of another 82° 50'. The ſolid angle at the apex is 73° 44'. The varieties of the cryſtalline forms of zircon amount to 7. In ſome caſes there is a four-ſided priſm interpoſed between the pyramids of the primitive form; ſometimes all the angles of this priſm are wanting and two ſmall triangular faces in place of each; ſometimes the cryſtals are dodecahedrons, compoſed of a flat four-ſided priſm with hexagonal faces, terminated by four-ſided ſummits with rhomboidal faces; ſometimes the edges of this priſm, ſometimes the edges where the priſm and ſummit join, and ſometimes both are wanting and ſmall faces are in their place.—The texture of Zircon is foliated: Internal luſtre 3: Tranſparency from 4 to 2. Cauſes a very great double refraction: Hardneſs from 16 to 16: Sp. gravity from 4·2 to 4·165: Colour commonly reddiſh or yellowiſh; ſometimes it is limpid. Before the blow-pipe, it loſes its colour, but not its tranſparency With borax it melts into a tranſparent glaſs. Infuſible with fixed alkali and microcoſmic ſalt.

"1. The *Variety,* formerly called *hyacinth,* is of a yellowiſh red colour, mixed with brown. Its ſurface is ſmooth: luſtre 3: Tranſparency 3 to 4." (See Hyacinth, N° 5.)

"2. The *Variety,* formerly called *Jargon of Ceylon,* is either grey, greeniſh, yellowiſh brown, reddiſh brown, or violet. It has little external luſtre. It is ſometimes nearly opaque."—See Chemistry, *Index*; and Jargon, N° 2.

"The firſt variety, according to Vauquelin, is compoſed of 64·5 zirconia, 32 ſilica, and 2 oxide of iron. A ſpecimen, analyſed by Klaproth, contained 70 zirconia, 25 ſilica, and 0·5 oxide of iron. The 2d variety, according to Klaproth, who diſcovered the component parts of both, contains 68 zirconia, 31·5 ſilica, and 0·5 nickel and iron.

Genus XXV. Ysi.

"Gadolinite. This mineral was firſt obſerved by Capt. Arhenius, lodged in a white felſpar in the quarry of Ytterby in Sweden, and received the name of *Gadolinite,* becauſe Gadolin was the chemiſt, who firſt aſcertained its compoſition. It occurs in thick kidney-form maſſes, or in parallel plates. Its colour is black; that of its powder greeniſh grey: Fracture conchoidal and glaſſy: Opaque: Scratched by iron, and in ſome caſes even by the nail. Attracted by the magnet. Before the blow-pipe decrepitates and melts into a black bliſtered ſlag; Forms with borax a yellowiſh

iſh tranſparent glaſs; with ſoda a white tranſparent glaſs. According to Vauquelin, it is compoſed of 35 yttria, 25·5 ſilica, 25 oxide of iron, 2 lime, 2 oxide of mangeneſe, and 10·5 water and carbonic acid. Klaproth on the other hand found 59·75 yttria, 21·25 ſilica, 18 oxide of iron, and 0·5 alumina. This laſt analyſis does not differ much from that which Ekeberg had before publiſhed.

“ ORDER II. STONSE SALINE.”

Under this order Dr Thomson “comprehends all the minerals which conſiſt of an earthy baſis combined with an acid,” and divides them into 5 genera; viz.

“ I. Calcareous Salts. 1. Carbonat, 2. Sulphat, 3. Phoſphat, 4. Fluat, 5. Borat, and 6. Arſeniat of Lime.

“ II. Barytic Salts. 1. Carbonat, and 2. Sulphat of Barytes.

“ III. Strontian Salts. 1. Carbonat, and 2. Sulphat of Strontian.

“ IV. Magnesian Salts. Sulphat of Magneſia.

“ V. Aluminous Salts. 1. Alum; 2. Mellite, 3. Chriolite.

GENUS I. CALCAREOUS SALTS.

“ This genus comprehends all the combinations of lime and acids, which form a part of the mineral kingdom.

“ *Sp.* 1. Carbonat of lime.” (See Chemistry, *Index.*) “ No other mineral can be compared with carbonat of lime, in the abundance with which it is ſcattered over the earth. Many mountains conſiſt of it entirely, and hardly a country is to be found on the face of the globe, where, under the names of *lime-ſtone, chalk, marble,* or *ſpar,* it does not conſtitute a greater or ſmaller part of the mineral riches. It is often amorphous, often ſtalactical, and often cryſtallized. The primitive form of its cryſtals is a parallelopiped, whoſe ſides are rhombs, with angles of 77° 30′ and 102° 30′. Its integrant molecules have the ſame form. The variety of its cryſtals amount to more than 40: for which ſee *De Liſle and Hauy.*

“ When cryſtallized, its texture is foliated; when amorphous, ſometimes foliated, ſometimes ſtriated, granular or earthy. Its luſtre varies from 0 to 3: Tranſparency 0 to 4. It cauſes double refraction, and is the only mineral which does ſo through a parallel faces of the cryſtal. Hardneſs from 3 to 9: Sp. gravity 2·315, to 2·78: Colour, when pure, white: effervesces violently with muriatic acid, and diſſolves completely, or leaves but a ſmall reſiduum. Solution colourleſs. This ſpecies occurs in a great variety of forms; and therefore has been ſubdivided into numerous varieties. All theſe may be conveniently arranged under two general diviſions.

“ I. SOFT CARBONAT OF LIME.

“ *Var.* 1. Agaric mineral. *Mountain milk,* or *mountain meal* of the Germans. It is found in the clefts of rocks, or the bottom of lakes. It is nearly in the ſtate of powder; of a white colour, ſometimes with a ſhade of yellow; and ſo light that it almoſt floats on water.” See Agaric, N° 6.

“ *Var.* 2. Chalk. The colour is white, ſometimes with a ſhade of yellow: Luſtre 0: Opaque Hardneſs 3 to 4: Specific gravity, 2·315 t 2·657: Texture earthy: adheres ſlightly to th tongue: feels dry: ſtains the fingers and marks falls to powder in water. It generally contain about $\frac{3}{100}$ of alumina, and $\frac{1}{100}$ of water; th reſt is carbonat of Lime.” See Chalk § 2.

“ *Var.* 3. *Arenaceous Limeſtone.* Colour yellow iſh white: Luſtre 1: Tranſparency 1. So britt that ſmall pieces crumble to powder between th fingers: Sp. gravity 2·742. Phoſphoreſces in th dark when ſcraped with a knife, but not whe heated. It conſiſts almoſt entirely of pure carb nat of lime.

“ *Var.* 4. *Teſtaceous Tufa.* Colour yellowiſh greyiſh white. It is exceedingly porous and bri tle; and is either compoſed of broken ſhells, reſembles mortar containing ſhells; or it conſiſ of fiſtulous concretions variouſly ramified and r ſembling moſs.

“ II. INDURATED CARBONAT OF LIME.

“ *Var.* 1. *Compact* Limestone. The textu is compact. It has little luſtre; and is moſt con monly opaque: Hardneſs 5 to 8: Specific gr vity 1·3864 to 2·72: Colour grey, with vari ſhades of other colours. It moſt commonly co tains about one 10th of alumina, oxyd of iro &c.; the reſt is carbonat of lime. It is uſual burnt as Lime

“ *Var.* 2. *Granularly foliated Limeſtone.* Stru ture ſomewhat ſlaty: Texture foliated and gr nular: Luſtre 2 to 1: Tranſparency 2 to Hardneſs 7 to 8: Sp. gravity 2·71 to 2·837 Colour white, of various ſhades from other c lours.

“ *Var.* 3. Sparry Limestone. Structu ſparry: Texture foliated: Fragments rhomboida Luſtre 2 to 3: Tranſparency 2 to 4; ſometim 1: Hardneſs 5 to 6: Sp. gravity from 2·693 2·718: Colour white; often with ſhades of oth colours. To this variety belong all the cryſta of carbonat of lime.

“ *Var.* 4. Striated Limestone. Textu ſtriated or fibrous: Luſtre 1 to 0: Tranſparenc 2 to 1: Hardneſs 5 to 7: Sp. gravity 2·6 to 2·7 Colour various.

“ *Var* 5. Swine-stone. Texture often earth Fracture often ſplintery: Luſtre 1 to 0. Tranſp rency 0 to 1: Hardneſs 6 to 7: Sp. gravity 2·7 to 2·7121: Colour dark grey, of various ſhade When ſcraped or pounded, it emits an urino or garlic ſmell.

“ *Var.* 6. Oviform. This variety conſiſts a number of ſmall round bodies, cloſely co pacted together: Luſtre 0. Tranſparency 0 or Hardneſs 6 to 7.

“ *Sp.* 2. Sulphat of Lime. Gypsum. S lenite.” “ This mineral is found abundant in Germany, France, England, Italy, &c.” (Chemistry, *Index,* and Gypsum.) It is fou ſometimes in amorphous maſſes, ſometimes powder, and ſometimes cryſtallized. The p mitive form of its cryſtals, according to Ro De Liſle is a dodecahedron, of two four-ſided p ramids, baſe to baſe, which, inſtead of termina ing in pointed ſummits, are truncated near t baſes; ſo that the ſides of the pyramids are tra ziums and terminate each in a rhomb. The rhombs are the largeſt faces of the cryſtal. Their angles are 52° and 158°. The inclination of two oppoſite faces of one pyramid to the two ſimilar faces of the other is 145°; that of the other faces 110°. (See *De Liſle, Chryſt.* i. 144.) The texture is foliated: Luſtre 0 to 4: Tranſparency 0 to 4. It cauſes double refraction. Its hardneſs does not exceed 4. Sp. gravity from 1·872 to 2·311. Colour white or grey. Before the blow-pipe it melts into a white enamel, provided the blue flame be made to play upon the edges of its laminæ. When the flame is directed againſt its faces, the mineral falls into powder. It does not effervеſce with muriatic acid, except it be impure; and it does not diſſolve in it. The following varieties deſerve attention:

"*Var.* 1 *Broad foliated Sulphat.* Texture broad foliated: Luſtre glaſſy, from 4 to 2: Tranſparency 4 to 3: Hardneſs 4: Sp. gravity 2·311: Colour grey, often with a ſhade of yellow.

"*Var.* 2. *Grano-foliated Sulphat.* Texture foliated and granular, ſo that it eaſily crumbles into powder: Luſtre 2 to 3: Tranſparency 2 to 3: Hardneſs 4 to 3: Sp. gravity from 2·274 to 2·310. Feels ſoft. Colour white or grey, often with a tinge of yellow, blue, or green; ſometimes fleſh red, brown, or olive green.

"*Var.* 3. *Fibrous Sulphat.* Texture fibrous: Fragments long ſplintery: Luſtre 2 to 3: Tranſparency 3 to 1; ſometimes 3: Hardneſs 4: Brittle: Spec. gravity 2·3: Colour white, often with a ſhade of grey, yellow, or red; ſometimes fleſh red, and ſometimes honey yellow; ſometimes ſeveral of theſe colours meet in ſtripes.

"*Var.* 4. *Compact Sulphat.* Texture compact: Luſtre 1 to 0: Tranſparency 2 to 1, ſometimes 0: Hardneſs 4: Sp. gravity from 1·872 to 2·288: Feels dry, but not harſh: Colour white, with a ſhade of grey, yellow, blue, or green; ſometimes yellow: ſometimes red; ſometimes ſpotted, ſtriped, or veined.

"*Var.* 3. *Farinaceous Sulphat.* Of the conſiſtence of meal: Luſtre 0: Opaque: Scarcely ſinks in water: Is not gritty between the teeth: Feels dry and meagre: Colour white, when heated below redneſs, it becomes of a dazzling white.

"*Sp.* 3. Phosphat of Lime. *Apatite. Phoſphorite.* Chryſolite of the French. Found in Spain," (See Chemistry, *Index*); "where it forms whole mountains, and in different parts of Germany. It is ſometimes amorphous, and ſometimes cryſtallized. The primitive form of its cryſtals is a regular ſix-ſided priſm. Its integrant molecule is a regular triangular priſm, whoſe height is to a ſide of its baſe as 1 to √2. Sometimes the edges of the primitive hexagonal priſm are wanting, and ſmall faces in their place; ſometimes there are ſmall faces inſtead of the edges which terminate the priſm; ſometimes theſe two varieties are united; ſometimes the terminating angles of the priſm are replaced by ſmall-faces; and ſometimes the priſm is terminated by four-ſided pyramids. Its texture is foliated: Fracture uneven, tending to conchoidal: External luſtre from 2 to 3, internal 3 to 2: Tranſparency from 4 to 2. Cauſes ſingle refraction: Hardneſs 6 to 7: Brittle: Spec. gravity 2·8429 to 3·218. Colour green or grey; ſometimes brown, red, blue, and purple. It is infuſible by the blow-pipe. When its powder is thrown upon burning coals, it emits a yellowiſh green phoſphoreſcent light. It is ſoluble in muriatic acid without effervеſcence, or decompoſition, and the ſolution often becomes gelatinous.

"*Sp.* 4. Fluat of Lime. Flour. This mineral is found abundantly in different countries, particularly in Derbyſhire. It is both amorphous and cryſtallized." (See Fluor, § V. i—ii.) "The primitive form of its cryſtals is the regular octahedron; that of its integrant molecules the regular tetrahedron. The varieties of its cryſtals hitherto obſerved amount to 7. Theſe are the primitive octahedron; the cube; the rhomboidal dodecahedron; the cubo-octahedron, which has both the faces of the cube and of the octahedron; the octahedron wanting the edges; the cube wanting the edges, and either one face or two faces in place of each. The texture is foliated: Luſtre from 2 to 3, ſometimes 0. Tranſparency from 2 to 4, ſometimes 1: cauſes ſingle refraction: Hardneſs 8: Very brittle: Specific gravity from 3·0943 to 3·1911. Colours numerous, red, violet, green, yellow, blackiſh, purple. Its powder thrown upon hot coals emits a bluiſh or greeniſh light. Two pieces of it rubbed in the dark phoſphoreſce. It decrepitates when heated. Before the blow-pipe it melts into a tranſparent glaſs. It admits of a poliſh, and is often formed into vaſes and other ornaments." See Chemistry, *Index*.

"*Sp.* 5. Borat of Lime. *Boracite.* This mineral has been found at Kalkberg near Luneburg, ſeated in a bed of ſulphat of lime. It is cryſtallized. The primitive form of its cryſtals is the cube. In general, all the edges and angles of the cube are truncated. The ſize of the cryſtals does not exceed half an inch. The texture is compact. Its fracture is flat conchoidal: External luſtre 3; internal greaſy 2: Tranſparency 2 to 3: Hardneſs 9 to 10: Sp. gravity 2·566. Colour greyiſh white, ſometimes paſſing into greeniſh white or purpliſh. When heated it becomes electric; and the angles of the cube are alternately poſitive and negative. Before the blow-pipe it froths, emits a greeniſh light, is converted into a yellowiſh enamel, garniſhed with ſmall points; which, if the heat be continued, dart out in ſparks. According to Westrum, who diſcovered its compoſition, it contains 68 boracic acid, 13·5 magneſia, 11 lime, 1 alumina, 2 ſilica, and 1 iron.

"*Sp.* 6. Arseniat of Lime. Pharmacolite of Karſten. Found in the Furſtenberg of Wittichen in tubercles, or ſmall capillary chryſtals united in bundles. Colour ſnow white Luſtre ſilky: Texture fibrous: Fibres diverging: Tranſparency of the cryſtals 4: Very friable. Klaproth found it compoſed of lime, arſenic acid, and a little cobalt.

"*Sp.* 7. Nitrat of Lime. Found abundantly mixed with native nitre." See Chemistry, *Index*.

"Genus II. Barytic Salts.

"This genus comprehends the combinations of Barytes with acids.

"*Sp.* 1. Carbonat of Barytes. Witherite. This mineral was diſcovered by Withering; hence Werner gave it the name of *Witherite*. It is found both amorphous and cryſtallized." (See CHEMISTRY, *Index.*) "The cryſtals are octahedrons or dodecahedrons, conſiſting of four or ſix-ſided pyramids applied baſe to baſe; ſometimes the ſix-ſided pyramids are ſeparated by a priſm; ſometimes ſeveral of theſe priſms are joined together in the form of a ſtar. Its texture is fibrous: Fracture conchoidal: Fragments long ſplintery: Luſtre 2: Tranſparency 2 to 3: Hardneſs 5 to 6: Brittle: Specific gravity 4·3 to 4·338: Colour greeniſh white. When heated it becomes opaque. Its powder phoſphoreſces when thrown on burning coals. It is ſoluble with efferveſcence in muriatic acid. The ſolution is colourleſs. According to PELLETIER it contains 62 parts barytes, 22 carbonic acid, and 16 water.

"*Sp.* 2. SULPHAT OF BARYTES. *Boroſelenite.* This mineral is found abundantly in many countries, particularly in Britain. It is ſometimes in powder, often in amorphous maſſes, and often cryſtallized. The primitive form of its cryſtals is a rectangular priſm, whoſe baſes are rhombs, with angles of 101° 30′, and 78° 30′. The varities of its cryſtals are very numerous. See De Liſle, *Cryſtal.* i. 588; and Hauy, *Ann. de Chim.* xii. 3." (See alſo CHEMISTRY, *Index.*) "The moſt common varieties are the octahedron with cuneiform ſummits, the ſix or four-ſided priſm, the hexangular table with bevelled edges. Sometimes theſe cryſtals are needle-form. Its texture is commonly foliated: Luſtre from 0 to 2: Tranſparency 2 to 0; in ſome caſes 3 or 4: Hardneſs 5 to 6: Specific gravity 4·4 to 4·44. Colour white, with a ſhade of yellow, red, blue, or brown. When heated it decrepitates. It is fuſible *per ſe* by the blue flame of the blow-pipe, and converted into *ſulphuret of barytes:* Soluble in no acid except the ſulphuric; and precipitated from it by water.

"*Var.* 1. *Foliated Sulphat.* Luſtre 3 to 2: Tranſparency from 4 to 2, ſometimes 1. Colours white, reddiſh, bluiſh, yellowiſh, blackiſh, greeniſh. M. Werner ſubdivides this variety into 3, according to the texture. Theſe ſubdiviſions are *granularly foliated, ſtraight foliated, curve foliated.*

"*Var.* 2. *Fibrous Sulphat.* Texture fibrous; fibres converging to a common centre: Luſtre ſilky or waxy 2: Tranſparency 2 to 1: Hardneſs 5: Colours yellowiſh, bluiſh, reddiſh.

"*Var.* 3. *Compact Sulphat.* Texture compact: Luſtre 0 to 1: Tranſparency 1 to 0. Feels meagre. Almoſt conſtantly impure: Colours light yellow, red, or blue.

"*Var.* 4. *Earthy Sulphat.* In the form of coarſe duſty particles, ſlightly cohering: Colour reddiſh or yellowiſh white.

"GENUS III. STRONTIAN SALTS.

"This genus comprehends all the combinations of Strontian and acids, which form a part of the mineral kingdom.

"*Sp.* 1. CARBONAT OF STRONTIAN. This mineral was firſt diſcovered in the lead mine of Strontian in Argyleſhire, and ſince that time it is ſaid to have been diſcovered, though not in great abundance, in other countries. It is found amorphous, and alſo cryſtallized in needles, which, according to Hauy, are regular ſix-ſided priſms. Its texture is fibrous; the fibres converge: Fra ture uneven: Luſtre 2: Tranſparency 2: Har neſs 5: Specific gravity from 3·4 to 3·66. Colo light green: Does not decrepitate when heate Before the blow-pipe becomes opaque and whit but does not melt. With borax it efferveſc and melts into a tranſparent colourleſs glaſs: E ferveſces with muriatic acid, and is totally d ſolved. The ſolution tinges flame purple.

"*Sp.* 2. SULPHAT OF STRONIAN. *Celeſti* This mineral has been found in Pennſylvan Germany, France, Sicily, and Britain. It was fi diſcovered near Briſtol by Mr Clayfield. There is found in ſuch abundance, that it has been e ployed in mending the roads. It occurs bo amorphous and cryſtallized. The cryſtals a moſt commonly bevelled tables, ſometimes rho boidal cubes. Its texture is foliated; more or l tranſparent: Hardneſs 5: Specific gravity 3 to 3·96: Colour moſt commonly a fine ſky blu ſometimes reddiſh, ſometimes white, or nearly c lourleſs. Klaproth found a ſpecimen from Pe ſylvania compoſed of 58 Strontian and 42 ſulph ric acid. According to Mr CLAYFIELD, the ſ phat of Strontian, found near Briſtol, is compoſ of 58·25 ſtrontian, 41·75 ſulphuric acid of 2· and a little iron. According to Vauquelin, t ſulphat of Strontian found at Bouvron in Franc which was contaminated with 0·1 of carbonat lime, is compoſed of 54 Strontian, and 45 ſ phuric acid.

"GENUS IV. MAGNESIAN SALTS.

"*Sp.* 1. SULPHAT OF MAGNESIA.

"*Sp.* 2. NITRAT OF MAGNESIA.

"Theſe ſalts are found in different countri either ſparingly mixed with the ſoil, or efflor cing upon walls, or diſſolved in mineral waters (See MINERAL, § 13, 15.) "I have mention them" (ſays Dr THOMSON) "merely in comp ance with the cuſtom of mineralogiſts; for th ought not, ſtrictly ſpeaking, to be ranked amo minerals. For a deſcription of them," and t other *earthy ſalts with baſis of Magneſia*, we re the reader to the article CHEMISTRY, *Index.*

"GENUS V. ALUMINOUS SALTS.

"This genus comprehends all the combi tions of alumina with acids, which conſtitute part of the mineral kingdom. Hitheto o three ſpecies have occurred.

"*Sp.* 1. ALUM. This ſalt is found in cryſt in ſoft maſſes, in flakes, and inviſibly mixed w the ſoil." For a deſcription, with its uſes, a the method of manufacturing it, ſee ALUM, 1—5; and CHEMISTRY, *Index.*

Sp. 2. MELLITE. *Honey-ſtone. Mellat of* mina. This mineral was firſt obſerved abou years ago," (*i. e.* about 1792) "in Thuringia, tween the layers of wood coal. It is of a h yellow colour (hence its name), and is uſ cryſtallized in ſmall octahedrons, whoſe ang often truncated. Luſtre 2 to 3: Tranſpar conſiderable: Fracture conchoidal: Hardn Specific gravity, according to ABICH, 1·6 When heated it whitens; and in the open burns without being ſenſibly charred. A w matter remains, which efferveſces ſlightly w acids, and which at firſt has no taſte, but at leng leaves an acid impreſſion upon the tong which ſhowed that it is compoſed chiefly of alumina and a peculiar acid, to which he gave the name of *mellitic*. Vauquelin obtained the ſame reſult. The *mellitic acid* has ſeveral properties in common with the OXALIC, which induced him at firſt to conſider it as the ſame. But Klaproth ſince demonſtrated that it is different. The mellitic acid, when expoſed to heat, is decompoſed very ſpeedily, and evaporates in a thick grey ſmoke. When diſtilled it yields a great quantity of carbonic acid. It combines in exceſs with potaſh, and forms a *ſuper-mellat*, which has a ſlightly acid taſte, is ſparingly ſoluble in water, and cryſtallizes. When this ſalt is poured into a ſolution of ſulphat of alumina, it occaſions a flaky precipitate; whereas ſuper-oxalat of potaſs occaſions none.

"*Sp.* 3. CHRIOLITE. *Sulphat of Soda and alumina.* This mineral has hitherto been found in Greenland only; from which it was brought to Copenhagen, where it lay 8 or 9 years unnoticed, till at laſt it was analyſed by Abelgaard. The primitive form of its cryſtals ſeems to be an octahedron, whoſe faces are iſoſceles triangles. Its colour is ſnow white: Texture foliated: Hardneſs inferior to that of fluat of lime: Specific gravity 2·949: Melts before it reaches a red heat, and when ſimply expoſed to the flame of a candle. Abelgaard analyſed it, and obtained fluoric acid and alumina. Klaproth has proved that it contains alſo ſoda. The reſult of his analyſis is as follows: 40·5 fluoric acid and water: 36 ſoda, 23·5 alumina. This analyſis has been confirmed by Vauquelin."—The name ought to be ſpelt *Cryolite*, as it is derived from κρυος, *frigus*, and λιθος, *lapis*, as if it were a *ſtone* that "melted as eaſily as ice." But the French chemiſts often corrupt the orthography of words derived from the Greek, by putting *ch* for κ, and *i* for υ, an impropriety in which they ought not to be followed.

"ORDER III. AGGREGATES.

"This order comprehends all mechanical mixtures of earths and ſtones found in the mineral kingdom. Theſe are exceedingly numerous: the mountains and hills, the mould on which vegetables grow, and indeed the greateſt part of the globe, are compoſed of them. A complete deſcription of aggregates belongs rather to geology than mineralogy. It would be improper therefore to treat of them fully here." (See EARTH, GEOLOGY, MOUNTAIN, TERRAQUEOUS GLOBE, VOLCANO, &c.) "But they cannot be altogether omitted; becauſe aggregates are the firſt ſubſtances which preſent themſelves to the view of the practical mineralogiſt; and becauſe, without being acquainted with the names and component parts of them, the moſt valuable mineralogical works could not be underſtood.

"Aggregates may be comprehended under 4 diviſions: 1. Mixtures of earths: 2. Amorphous fragments of ſtones agglutinated together: 3. Chryſtallized ſtones, either agglutinated together, or with amorphous ſtones: 4. Aggregates formed by fire. It will be convenient to treat each of theſe ſeparately. I ſhall therefore divide this order into 4 ſections.

"SECT. I. AGGREGATES *of* EARTHS.

"The moſt common earthy aggregates may be comprehended under the following genera: 1. *Clay*; 2. *Colorific Earths*; 3. *Marl*; 4. *Mould*.

"GENUS I. CLAY.

"Clay is a mixture of alumina and ſilica in various proportions. The alumina is in the ſtate of an impalpable powder; but the ſilica is almoſt always in ſmall grains, large enough to be diſtinguiſhed by the eye. Clay, therefore, exhibits the character of alumina, and not of ſilica, even when this laſt ingredient predominates. The particles of ſilica are already combined with each other; and they have ſo ſtrong an affinity for each other, that few bodies can ſeparate them; whereas the alumina, not being combined, readily diſplays the characters, which diſtinguiſh it from other bodies. Beſides alumina and ſilica, clay often contains carbonat of lime, of magneſia, barytes, oxide of iron, &c. And as clay is merely a mechanical mixture, the proportion of its ingredients is exceedingly various." (See CLAY, § I. 1—5.) "It has been divided into the following ſpecies:

"*Sp.* 1. PORCELAIN CLAY. Its texture is earthy; Luſtre 0: Opaque: Hardneſs 4: Sp. gravity 2·23 to 3·41. Colour white, ſometimes with a ſhade of yellow or red. Adheres ſlightly to the tongue; feels ſoft; falls to powder in water. A ſpecimen, analyſed by HASSENFRATZ, contained 62 ſilica, 19 alumina, 12 magneſia, 7 ſulphat of barytes. A ſpecimen, analyſed by Wedgewood, contained 60 alumina, 20 ſilica, 12 air of water." See PORCELAIN.

"*Sp.* 2. *Common* CLAY. Its texture is earthy. Luſtre 0: Opaque: Hardneſs 3 to 6: Sp. gravity 1·8 to 2·68. Adheres ſlightly to the tongue: Often feels greaſy: Falls to powder in water: Colour, when pure, white: Often tinged blue or yellow."

"*Var.* 1. POTTER'S CLAY. Hardneſs 3 to 4: Sp. gravity 1·8 to 2; ſtains the fingers ſlightly; acquires ſome poliſh by friction: Colour white; often with a tinge of yellow or blue; ſometimes browniſh, greeniſh, reddiſh. Totally diffuſible in water; and, when duly moiſtened, very ductile.

"*Var.* 2. *Indurated Clay.* Hardneſs 5 to 6; does not diffuſe itſelf in water, but falls to powder; diſcovers but little ductility. Colours grey, yellowiſh, bluiſh, greeniſh, reddiſh, browniſh.

"*Var.* 3. *Shiſtoſe Clay.* Structure ſlaty; ſp. gravity 2·6 to 2·68; feels ſmooth; ſtreak white or grey. Colour bluiſh, or yellowiſh grey; ſometimes blackiſh, reddiſh, greeniſh; found in ſtrata; uſually in coal-mines. This variety is ſometimes impregnated with bitumen. It is, then, called *bituminous ſhale*.

"*Sp.* 3. LITHOMARGA. Texture earthy; fracture conchoidal; luſtre 0 to 2; opaque; hardneſs 3 to 7; ſp. gravity, when pretty hard, 2·815; ſurface ſmooth, and feels ſoapy; adheres ſtrongly to the tongue; falls to pieces, and then to powder in water, but does not diffuſe itſelf through it. Fuſible *per ſe* into a frothy maſs.

"*Var.* 1. *Friable Lithomarga.* Formed of ſcaly particles ſlightly cohering; luſtre 1 to 0; hardneſs 3 to 4; exceedingly light; feels very ſmooth, and aſſumes a poliſh from the nail. Colour white; ſometimes tinged yellow or red.

"*Var.* 2. *Indurated Lithomarga.* Hardneſs 4 to 7. The ſofter ſort adheres very ſtrongly to the tongue when newly broken; the harder very moderately. Colours, grey, yellow, red, blue, or brown.

“ A ſpecimen, from Oſmund, analyſed by Bergman, contained 60 ſilica, 11 alumina, 5·7 carbonat of lime, 4·7 oxide of iron, 0·5 carbonat of magneſia, 18 water and air.

“ *Sp.* 4. Bole Texture earthy: fracture conchoidal: Luſtre 0: Tranſparency ſcarce 1: Hardneſs 4: Sp. gravity from 1·4 to 2: Acquires a poliſh by friction: ſcarcely adheres to the tongue: feels greaſy: Colour yellow or brown; ſometimes red, ſometimes ſpotted.” (See Bole, N° II, § 1—6.) “ The Lemnian earth, which belongs to this ſpecies, according to Bergman, contains 47 ſilica, 19 alumina, 6 carbonat of magneſia, 5·4 carbonat of lime, 5·4 oxide of iron, 17 water and air.” See Bole, N° 4; and Lemnian Earth.

“ *Sp.* 5. Fuller’s earth. Texture earthy: Structure ſometimes ſlaty: Fracture imperfectly conchoidal: Luſtre 0: Opaque: Hardneſs 4: Receives a poliſh from friction: does not adhere to the tongue: feels greaſy: Colour uſually light green. A ſpecimen from Hampſhire, analyſed by Bergman, contained 51·8 ſilica, 25 alumina, 3·3 carbonat of lime, 3·7 oxide of iron, 0·7 carbonat of magneſia, 15·5 moiſture. This earth is uſed by fullers to take the greaſe out of their cloth before they apply ſoap. It is eſſential to it, that the particles of ſilica be very fine, otherwiſe they would cut the cloth. Any clay, poſſeſſed of this laſt property, may be accounted *fuller’s earth;* for it is the alumina alone which acts upon the cloth, on account of its ſtrong affinity for greaſy ſubſtances.” See Fuller’s earth, § 1, 2; and Fulling, § 1, 3.

“ Genus II. Colorific Earths.

“ The minerals belonging to this genus conſiſt of clay, mixed with ſo large a quantity of ſome colouring ingredient, as to render them uſeful as paints. The colouring matter is commonly oxide of iron, and ſometimes charcoal.

“ *Sp.* 1. Red Chalk: Reddle. Texture earthy; Fracture conchoidal: Luſtre 0: Opaque: Hardneſs 4: Sp. gravity inconſiderable: Colour dark red: Feels rough: ſtains the fingers: adheres to the tongue: falls to powder in water: does not become ductile: When heated it becomes black, and at 158° Wedg. melts into a greeniſh yellow frothy enamel. Compoſed of clay and oxide of iron.” See Chalk, § 5.

“ *Sp.* 2. Yellow Chalk. Texture earthy: Fracture conchoidal: Hardneſs 3: Sp. gravity inconſiderable: Colour ochre yellow. Feels ſmooth or greaſy: ſtains the fingers: adheres to the tongue: falls to pieces in water. When heated becomes red; and at 156° Wedg. melts into a brown porous porcelain. According to Sage, it contains 50 parts alumina, 40 oxide of iron, 10 water, with ſome ſulphuric acid.

“ *Sp.* 5. Black Chalk. Structure ſlaty: Texture earthy: Fragments ſplintery: Luſtre 0: Opaque: Hardneſs 5: Sp. gravity 2·144 to 2·77: Colour black: ſtreak black. Feels ſmooth: adheres ſlightly to the tongue: does not moulder in water: When heated to redneſs it becomes reddiſh grey. According to Wiegleb, it is compoſed of 64·5 ſilica, 11·25 alumina, 11 charcoal, 2·7 oxide of iron, 7·5 water. See Chalk, § 4.

“ *Sp.* 4. *Green earth.* Texture earthy: Luſtr 0: Opaque: Hardneſs 6 to 7: Sp. gravity 2·637 Colour green. Commonly feels ſmooth: doe not ſtain the fingers: often falls to powder in water: when heated it becomes reddiſh brown; an at 147° Wedg. melts into a black compact glaſs

“ Genus III. Marl.

“ A mixture of carbonat of lime and clay, i which the carbonat conſiderably exceeds th other ingredients, is called *marl.* Its texture i earthy: Luſtre 0: Opaque: Hardneſs 4 to 8 ſometimes in powder: Spec. gravity, from 1·6 t 2·877: Colour uſually grey; often tinged wit other colours: effervesces with acids. Some marl crumble into powder when expoſed to the air others retain their hardneſs for many years. Marl may be divided into two ſpecies: 1. Thoſe whic contain more ſilica than alumina: 2. Thoſe whic contain more alumina than ſilica. Mr Kirwan ha called the firſt of theſe *Siliceous,* the 2d. *Argillaceous Marls.* Attention ſhould be paid to this diſtinction when marls are uſed as a manure.” Se Marl, § 1—3.

“ Genus IV. Mould.

“ By mould is meant the ſoil on which vegetables grow. It contains the following ingredients: Silica; alumina, lime, magneſia, (ſometimes) iron, carbon derived from decayed vegetable and animal ſubſtances, carbonic acid and water. And the good or bad qualities of soils depend upon a proper mixture of theſe ingredients. The ſilica is ſeldom in the ſtate of an impalpable powder, but in grains of a greater o ſmaller ſize. Its chief uſe ſeems to be, to keep the ſoil open and pervious to moiſture. I we paſs over the carbon, the iron, and the carbonic acid, the goodneſs of a ſoil depends upo its being able to retain the quantity of moiſture which is proper for the nouriſhment of vegetables, and no more. Now the retentive power of a ſoil increaſes with the proportion of its alumina, lime, or magneſia, and diminiſhes as the proportion of its ſilica increaſes. Hence it follows, that in a dry country, a fertile ſoil ſhould contain leſs ſilica, and more of the other earths, than in a wet country. Giobert found a fertile ſoil near Turin, where it rains annually 30 inches, to contain from 77 to 79 ſilica; 9 to 14 alumina, and 5 to 12 lime. Near Paris, where it rains about 20 inches annually, M. Tillet found a fertile ſoil to contain coarſe ſand 25, fine ſand 21, in all 46 ſilica, 16·5 alumina, 37·5 lime.

“ The varieties of mould are too numerous to admit an accurate deſcription: It will be ſufficient therefore to mention the moſt remarkable:

“ *Sp.* 1. Sand. This conſiſts of ſmall grains of ſiliceous ſtones, not cohering together, nor ſoftened by water. When the grains are of a large ſize, the ſoil is called *gravel.*

“ *Sp.* 2. Clay. This conſiſts of common clay mixed with decayed vegetable and animal ſubſtances.

“ *Sp.* 3. Loam. Any ſoil, which does not cohere ſo ſtrongly as clay, but more ſtrongly than chalk, is called *loam.* There are many varieties: The following are the moſt common:

"*Var.* 1. *Clayey Loam*; called alſo *ſtrong*, *ſtiff*, *cold* and *heavy* loam. It conſiſts of a mixture of clay and coarſe ſand.

"*Var.* 2. *Chalky Loam*; A mixture of clay, chalk, and coarſe ſand; the chalk predominating.

"*Var.* 3. *Sandy Loam.* A mixture of the ſame ingredients, the ſand amounting to 0·8 or 0·9 of the whole.

"*Sp.* 4 TILL is a mixture of clay and oxide of iron. It is of a red colour, very hard and heavy.

"SECT. II. AGGREGATES *of* AMORPHOUS STONES.

"The aggregates, which belong to this ſection, conſiſt of amorphous fragments of ſtones cemented together. They may be reduced to the following genera: 1. *Sandſtone*; 2. *Pudding-ſtone*; 3. *Amygdaloid*; 4. *Breccia*.

"GENUS I. SANDSTONE.

"Small grains of ſand, conſiſting of quartz, flint, hornſtone, ſiliceous ſhiſtus, or felſpar, and ſometimes of mica, cemented together, are denominated ſandſtones. They feel rough and ſandy; and when not very hard eaſily crumble into ſand. The cement or baſis, by which the grains of ſand are united to each other is of four kinds; namely, lime, alumina, ſilica, iron. Sandſtones, therefore, may be divided into 4 ſpecies.

"*Sp.* 1. *Calcareous ſandſtones* are merely carbonat of lime or marl, with a quantity of ſand interpoſed between its particles. Though the quantity of ſand, in many caſes, far exceeds the lime, calcareous ſandſtones are ſometimes found cryſtallized; and, in ſome caſes, the cryſtals have ſome of the forms which diſtinguiſh carbonat of lime. Thus the calcareous ſandſtone of Fountainbleau is cryſtallized in rhomboidal tables. It contains, according to LASSONE, 62·5 ſiliceous ſand, 37·5 carbonat of lime. Calcareous ſandſtones have commonly an earthy texture: Their ſurface is rough: Hardneſs from 6 to 7: Specific gravity 2·5 or 2·6: Colour grey; ſometimes yellowiſh or brown. They are ſometimes burnt for lime.

"*Sp.* 2. *Aluminous Sandſtones.* The baſis of argillaceous ſandſtones is alumina or rather clay. Their ſtructure is often ſlaty: Texture compact, either fine or coarſe grained, according to the ſize of the ſand: Hardneſs from 6 to 8, or 9: Colour grey, yellow, or brown. They are often formed into mill-ſtones, filtering ſtones, and coarſe whetſtones.

"*Sp.* 3. *Siliceous Sandſtones* conſiſt of grains of ſand cemented together by ſilica, or ſome ſubſtance, which conſiſts chiefly of ſilica or flint. They are much harder than any of the other ſpecies. Sometimes ſtones occur, conſiſting of grains of lime cemented together with ſilica. Theſe are alſo named *ſiliceous* Sandſtones.

"*Sp.* 4. *Ferruginous Sandſtones.* The iron which acts as a cement in theſe ſtones is not far from a metallic ſtate. When iron is completely oxidated, it loſes the property of acting as a cement. This is the reaſon that ferruginous ſandſtones, when expoſed to the air, almoſt always crumble into powder. The colour is uſually [illegible], yellow, or brown. The grains of ſand are often pretty large. Their hardneſs is inconſiderable.

"GENUS II. PUDDING STONE.

"Pebbles of quartz, flint, or other ſimilar ſtones of a round or elliptical form, from the ſize of a rape-ſeed to that of an egg, cemented together by a ſiliceous cement, often mixed with iron, have been named *Pudding Stones*. Pudding ſtones, of courſe, are not inferior in hardneſs to quartz, flint, chalcedony, &c. of which the pebbles may conſiſt. The colour of the cement is uſually yellow, brown, or red. Its fracture is conchoidal. The finer ſorts are capable of a fine poliſh; the coarſe are uſed for mill-ſtones.

"GENUS III. AMYGDALOID.

"Rounded or elliptical maſſes of chalcedony, zeolite, lime-ſtone, lithomarga, ſteatites, green earth, garnets, hornblend, or opal, cemented together by a baſis of indurated clay, trap, mullen, walken or kragg, conſtitute an *amygdaloid*." (See AMYGDALOIDS.) "Amygdaloids are opaque. They have no luſtre: Fracture uneven or conchoidal: Hardneſs 6 to 9: Colours as various as the ingredients they are compoſed of.

"GENUS IV. BRECCIA.

"Angular fragments of the ſame *ſpecies* of ſtone agglutinated together, conſtitute a *breccia*. Thus *calcareous* breccia conſiſts of fragments of marble cemented together by lime.

"SECT. III. AGGREGATES *of* CRYSTALS.

"The minerals belonging to this ſection conſiſt either of different kinds cemented together, or of cryſtals and amorphous ſtones cemented together. They may be reduced under the following genera: 1. *Granite*; 2. *Sienite*; 3. *Granatine*; 4. *Granitel*; 5. *Granilite*; 6. *Trap*; 7. *Porphyry*.

"GENUS I. GRANITE.

"An aggregate of felſpar, quartz, and mica, whatever be the ſize and figure of the ingredients, is denominated *granite*." (See GRANITE.) "This aggregate may be divided into 2 ſpecies, viz. *common* granite, and *ſhiſtoſe* granite, or gneiſs.

"*Sp.* 1. *Common Granite.* Its ſtructure is always granular. The felſpar is often amorphous, and conſtitutes the greateſt part of the aggregate. Granites differ much in their appearance according to the ſize, proportion, colour and figure of their component parts. They are commonly very hard. Specific gravity from 2·5388 to 2·9564.

"*Sp.* 2. *Shiſtoſe Granite*, or *Gneiſs*. The ſtructure is always ſlaty. This conſtitutes its ſpecific character. The proportion of quartz and felſpar is nearly equal; that of mica ſmalleſt.

"GENUS II. SIENITE.

"Mr WERNER has given the name of *Sienite* to aggregates compoſed of felſpar, hornblende, and quartz; or of felſpar, hornblende, quartz, and mica. Theſe aggregates were formerly confounded with granite. Sienite is found both of a granular and ſlaty ſtructure. It might therefore be divided into two ſpecies. In ſienite the quartz is commonly in by far the ſmalleſt proportion.

"GENUS III. GRANATINE.

"Mr KIRWAN has applied the name *Granatine* to the following aggregates; 1. Quartz felſpar ſhorl: 2. Quartz felſpar jade: 3. Quartz felſpar garnet: 4. Quartz mica ſhorl: 5. Quartz mica jade: 6. Quartz mica garnet: 7. Quartz ſhorl hornblende: 8. Quartz ſhorl jade: 9. Quart ſhorl garnet: 10. Quartz hornblende jade: 11. Quartz hornblende garnet: 12. Quartz jade garnet: 13. Quartz hornblende hornſtone: 14. Felſpar mica ſhorl: 15. Felſpar mica hornblende: 16. Felſpar quartz ſerpentine: 17. Felſpar quartz ſteatites.—One of theſe, *viz.* *Quartz mica garnet*, was called by Cronſtedt *noraka* or *murkſten*.

"Genus IV. Granitell.

"Mr Kirwan gives the name of *Granitell* to all aggregates compoſed of any two of the following ingredients: quartz, felſpar, mica, ſhorl, hornblende, jade, garnet, ſteatites." Dr Thomſon gives a table of them, for which we refer to his work. "Some of theſe aggregates have received particular names: the aggregate of quartz and mica, when its ſtructure is ſlaty, is called by Werner *ſhiſtoſe mica*; by the Swedes *Stellſten*, whatever be its ſtructure. That of hornblende and mica is called *grunſtein* from its dark green colour.

"Genus V. Granilite.

"Under the name of *granilite*, Mr Kirwan comprehends all aggregates containing more than 3 ingredients. Of theſe the following are the moſt remarkable: 1. Quartz felſpar mica ſhorl: 2. Quartz felſpar mica ſteatites: 3. Quartz mica ſhorl garnet: 4. Quartz felſpar mica garnet: 5. Quartz ſulphat of barytes mica ſhorl: 6. Quartz ſulphat of barytes mica hornblende.

Genus VI. Trap.

"Under this genus" Dr Thomson "claſſes not only what has commonly been called trap, (See Trapp), but alſo wacken and mullen, and Kragstone of Kirwan.

"*Sp.* 1. *Common* Trap. This ſtrong is very common in Scotland, where it is named Whinstone. Whole hills are formed of it; and it occurs very often in large round detached fragments. Sometimes it aſſumes the form of immenſe columns, and is then called *baſalt*". (See Basaltes, § 1—12.) The Giants Causeway in Ireland, the iſland of Staffa, and the S. ſide of Arthur's Seat in Scotland, are well known inſtances of this figure." (See theſe articles.) "Its texture is earthy or compact: Fracture uneven: Luſtre commonly 0: Opaque: Hardneſs 8 to 9: Not brittle: Specific gravity from 2·78 to 3·021: Colour black, with a ſhade of grey, blue, or purple; ſometimes blackiſh or reddiſh brown; in ſome caſes greeniſh grey. By expoſure to the atmoſphere, it becomes inveſted with a browniſh rind. Before the blow-pipe it melts *per ſe* into a more or leſs black glaſs. Trap conſiſts of ſmall cryſtals of hornblende, felſpar, olivine, &c. uſually ſet in a ground compoſed apparently of clay and oxide of iron. A ſpecimen in the form of baſaltes from Staffa, analyſed by Dr Kennedy of Edinburgh, contained 48 ſilica, 16 alumina, 16 oxide of iron, 9 lime, 5 moiſture, 4 ſoda and 1 muriatic acid. A ſpecimen from Salisbury rock," (Crag) "near Edinburgh, contained 46 ſilica, 19 alumina, 17 oxide of iron, 8 lime, 4 moiſture, 3·5 ſoda, and 1 muriatic acid. Dr Kennedy conducted theſe analyſes with great ingenuity and judgment; and the diſcovery, that *trap contains ſoda*, is certainly of importance, and ma lead to valuable conſequences, both in a geological and mineralogical view.

"*Sp.* 2. Wacken. This ſtone forms conſide able parts of hills, and, like trap, is amorphou Its texture is earthy: Fracture uſually eve Luſtre 0: Opaque: Hardneſs 6 to 9: Specif gravity 2·535 to 2·893: Colour grey, with a ſha of green, black, red, brown. When expoſed the atmoſphere, it withers and becomes mo grey. It melts into a grey porous ſlag.

"*Sp.* 3. Mullen. This ſtone is alſo foun in conſiderable maſſes, and ſometimes has a te dency to a columnar form like baſalt. Textu earthy: Fracture uneven, and fine ſplintery Luſtre 0, except from ſome ſhining particles baſaltine: Opaque: Hardneſs 7 to 9: Specif gravity 2·6 to 2·738: Colour aſh or bluiſh grey ſometimes mixed with yellow, from the decon poſition of the ſtone. At 130° Wedgewood melts into a black compact glaſs. When e poſed to the air, its ſurface becomes cover with a greyiſh white rind, ſometimes ſligh ochry.

"*Sp.* 4. Kragstone. This ſtone, which al forms conſiderable parts of rocks, was formed i to a diſtinct ſpecies by Mr Kirwan. Textu earthy: It is exceedingly porous, and the por are often filled with the cryſtals of other minera Fracture uneven: Luſtre 0: Opaque: Hardne 5 to 7: Sp. gravity 2·314: Feels rough and harſ Colour reddiſh grey: Streak yellowiſh grey. A 138° Wedg. it melts into a reddiſh brown porcelain maſs.

"Genus VII. Porphyry.

"Any ſtone, which contains ſcattered cryſtal or grains of felſpar viſible to the naked ey is denominated a *porphyry*." (See Porphyry "Beſides felſpar, porphyries generally contai ſmall cryſtals of quartz, hornblende and mica These cryſtals are uſually of a different colou from the ſtone in which they are found, and the are ſtuck in it as in a cement. It is evident fro this definition, that the number of porphyri muſt be great. Each ſpecies receives its nam from the ſtone which forms its baſis. To deſcrib them would be unneceſſary. I ſhall only give catalogue of the principal ſpecies: 1. Hornſton porphyry: 2. Pitchſtone p. 3. Hornſlate p. 4 Felſpar or petunſe p. 5. Clay p. 6. Hornblende p 7. Trap p. 8. Wacken p. 9. Mullen p. 10. Kra p. 11. Argillitic p. 12. Potſtone p. 13. Serpentin p. 14. Sandſtone p.

"Sect. IV. Volcanic Aggregates.

"Aggregates formed by volcanoes may b reduced to the following genera: 1. Lava: 2 Puzzolana: 3. Pumice: 4. Ashes.

"Genus I. Lava.

"All ſubſtances, which have iſſued out of volcano in a ſtate of fuſion, are called *lava*." (See Lava, § 1—10.) "They have been divid into 3 ſpecies.

"*Sp.* 1. *Vitreous Lava.* Found in ſmall pieces Texture gloſſy: Fracture conchoidal: Luſtre Tranſparency 3 to 1: Hardneſs 9 to 10: Sp. gra vity 2 to 3: Colour blackiſh, greeniſh, or whitiſh commonly ſomewhat porous.

"*Sp.* 2. *Cellular Lava.* This ſpecies is full o cells: Surface rough and full of cavities: Texture earthy: Luſtre 0: Opaque: Hardneſs 7 to 9: Specific gravity varies, but does not exceed 2·8. Colour brown or greyiſh black. Commonly ſomewhat magnetic.

"*Sp.* 3. *Compact Lava.* This ſpecies is the moſt common of all; it runs into the 2d by inſenſible degrees; and indeed is ſeldom found of any conſiderable ſize without ſome pores. It bears in general a very ſtrong reſemblance to trap. A ſpecimen of the lava of Catania in Sicily, analyſed by Dr Kennedy, contained 51 ſilica, 19 alumina, 14·5 oxide of iron, 9·5 lime, 4 ſoda, and 1 muriatic acid. A ſpecimen of the lava of St Venere in Sicily he found to contain 50·75 ſilica, 17·5 alumina, 14·25 oxide of iron, 10 lime, 4 ſoda, and 1 muriatic acid. Thus the reſemblance between trap and lava holds not only in their external appearance, but alſo in their component parts.

"Genus II. Puzzolana.

"Found in ſmall pieces: Surface rough: Texture earthy and porous: Fracture uneven: Luſtre 0: Opaque: Hardneſs 3: Very brittle: Sp. gravity 2·57 to 2·8: Colour brown or dark grey: Magnetic: Eaſily melts into a black ſlag. When mixed with lime into mortar, it poſſeſſes the property of hardening even *under water*. This property it owes, Mr Kirwan ſuppoſes, to the iron which it contains. The iron decompoſes the water of the mortar; and thus, in a very ſhort time, renders it too hard to be acted on by water.

"Genus III. Pumice.

"This is a very ſlight ſubſtance ejected from volcanoes. It is porous: Hardneſs 3: Brittle: Sp. gravity below 1: Colour grey or brown. In ſome varieties the luſtre and tranſparency are 0: in others the luſtre is glaſſy, 2: Tranſparency from 1 to 2.

"Genus IV. Volcanic Ashes.

"Theſe are analogous to the aſhes of common pit-coal: Looſe and ſmooth, very light and fine: Slowly diffuſible in water, and when wet ſomewhat ductile.

"APPENDIX.—Of MOUNTAINS.

"The mountains, which conſtitute ſo conſpicuous a part of the earth's ſurface, are chiefly compoſed of the Aggregates which have been juſt deſcribed. Mountains, by Werner and his diſciples, are divided into 4 claſſes; namely, 1. *Primitive*; 2. *Intermediate*; 3. *Secondary*; 4. *Tertiary*." (See Mountains, § 7—11.) "To which may be added volcanic mountains as a 5th claſs." (See Ætna, Etna, Hecla, Lipari, Vesuvius, Volcano, &c.)

"I. Primitive Mountains are compoſed of the following ſubſtances; 1. Granite; 2. Gneiſs; 3. Micaceous ſhiſtus; 4. Argillaceous ſhiſtus; 5. Primitive limeſtone; 6. Trap; 7. Porphyry; 8. Sienite; 9. Serpentine; 10. Topaz rock; 11. Quartz 12: Siliceous ſhiſtus.

"II. Intermediate Mountains are compoſed of, 1. Limeſtone; 2. Trap; 3. Amygdaloid; 4. Wacken.

"III. Secondary Mountains are compoſed of, 1. Sandſtone; 2. Limeſtone; 3. Gypſum; 4. Chalk; 5. Coal; 6. Common ſalt; 7. Argillaceous iron-ſtone and calamine; 8. Trap.

"IV. Tertiary Mountains are compoſed of, 1. Sand and pebbles; 2. Clays and mud; 3. Bituminous tufa.

Chap. V. "Class II. Salts."

Under this claſs Dr Thomson comprehends "all the combinations of alkalies with acids which exiſt in the mineral kingdom. They conſtitute the following genera and ſpecies.

"Genus I. Potass.

"*Sp.* 1. Sulphat of Potaſs:
2. Nitrat of Potaſs.

"Genus II. Soda.

"*Sp.* 1. Carbonat of Soda:
2. Sulphat of Soda:
3. Muriat of Soda:
4. Borax.

"Genus III. Ammonia.

"*Sp.* 1. Sulphat of Ammonia:
2. Muriat of Ammonia."

For all of the above ſalts, ſee Chemistry, *Index*.

"But of theſe ſpecies (ſays the Doctor) there are ſcarcely more than two which properly belong to the mineral kingdom; namely, carbonat of ſoda and common ſalt. The reſt are almoſt always in a ſtate of ſolution, and therefore belong to *mineral waters*." See Mineral, § 13—15.

"I. *Carbonat of Soda* is depoſited in large maſſes in different countries under the ſurface of the earth, and is uſually mixed with common ſalt, and probably alſo with lime. It has often the appearance of a rough duſty powder, of a grey colour and alkaline taſte. It occurs in China, where it is called *kien*; near Tripoli, where it is named Trona; and likewiſe in Hungary, Syria, Egypt, Perſia, and India.

"II. *Muriat of Soda*, or *Common Salt*, is found in immenſe maſſes under the earth's ſurface in many countries; particularly in Poland, Hungary, England, &c. Near Cordova in Spain, there is ſaid to be a mountain of common ſalt 500 feet high, and nearly 3 miles in circumference. There are two varieties of common ſalt diſtinguiſhed by their texture:

"1. *Foliated.* This variety is uſually found in vaſt maſſes, and ſometimes cryſtallized in cubes. Colour various ſhades of grey and of red: Internal luſtre glaſſy, 2 to 3: Tranſparency 2 to 4: Texture foliated; Fragments cubic; ſtreak grey: Hardneſs 4 to 5; ſometimes 8: Sp. gravity 2·143: Taſte ſalt.

"2. *Fibrous.* Found in maſſes, ſtrata, or ſtalactitic: Colour various ſhades of grey, blue, red: Luſtre 2: Tranſparency 3 to 4: Texture fibrous; fibres delicately cured: Fragments angular."

For farther particulars reſpecting the properties, phenomena, manufacture, &c. of ſalt, ſee Chemistry, *Index*; and Salt.

Chap. VI. "Class III. Combustibles.

"The combuſtible ſubſtances belonging to the mineral kingdom, excluding the metals, may be comprehended under the following genera: 1. *Sulphur*; 2. *Carbon*; 3. *Bitumen*; 4. *Coal*; 5. *Amber*.

"Genus I. Sulphur.

"*Sp.* 1. *Native Sulphur.* This ſubſtance is found abundantly in many parts of the world, eſpecially near volcanoes, as Hecla, Ætna, Veſuvius, the Lipari Iſlands, &c. It is either in the ſtate of powder, or maſſive, or cryſtallized. The primitive form of its cryſtals is an octahedron, compoſed of two four-ſided pyramids joined baſe to baſe. The ſides of thoſe pyramids are ſcalene triangles, and ſo inclined, that the plane where the baſis of the pyramids join is a rhomb, whoſe long diagonal is to its ſhort as 5 to 4. Sometimes the apices of the pyramids are truncated; ſometimes they are ſeparated by a priſm; ſometimes they are truncated near their baſes, and a low four-ſided pyramid riſes from the truncature: this pyramid is alſo ſometimes truncated near its apex. Finally, one of the edges of the pyramid is ſometimes truncated. Colour yellow, with a ſhade of green; ſometimes reddiſh: Luſtre greaſy, 2: Tranſparency varies from 0 to 4: Cauſes double refraction: Texture compact: Hardneſs 4 to 5: Brittle. Its other properties," phenomena, and combinations, are detailed under Chemistry. See alſo Sulphur.

"Genus II. Carbon.

"This genus comprehends all minerals compoſed of pure carbon, or of carbon combined with a little earth.

"*Sp.* 1. Diamond. This mineral, which was well known to the ancients, is found in different parts of Aſia, particularly in Golconda and Viſapour; it is found alſo in Braſil. It is always cryſtallized; but ſometimes ſo imperfectly, that at the firſt ſight it might paſs for amorphous. Its primitive form is a regular octagon; but it more commonly aſſumes a ſpheroidal form, and then has uſually 36 curvilinear triangular faces, 6 of which are raiſed upon each of the faces of the primitive octagon. Its integrant molecule, according to Hauy, is a regular tetrahedron. Texture foliated: Luſtre 4: Tranſparency from 2 to 4: Cauſes ſingle refraction: Hardneſs 20: Spec. gravity, 3·5185 to 3·5310: Colour various; limpid, red, orange, yellow, green, blue, and even blackiſh. When rubbed, it becomes poſitively electric, even before it has been cut by the lapidary, which is not the caſe with any other gem. It is compoſed of pure carbon." For the combuſtibility and other properties and phenomena of this ſtone, ſee *Part* III. *Chap.* III. alſo Chemistry, *Index*; and Diamond, § I. i—xii.

"*Sp.* 2. Mineral Charcoal. *Kilkenny Coal. Wales Culm.* This mineral has been found in Hungary, Italy, France, Ireland, and Wales." (See Coal, § III. N° 4.) "It occurs in ſtratified maſſes, or in lumps neſted in clay. Colour black: Luſtre 4, metallic: Opaque: Texture foliated: Hardneſs 5 to 7: Sp. gravity 1·4 to 1·526; often ſtains the fingers: Inſoluble in acids; deflagrates with nitre; does not burn till wholly ignited, and then conſumes ſlowly without emitting flame or ſmoke. It conſiſts almoſt entirely of Charcoal, which, as Morveau has proved, is an oxide of carbon." See Chemistry, *Index*.

"*Sp.* 3. Anthracite, *Anthracolite* of Born. "This ſubſtance, as Dolomieu informs, is found excluſively in the primitive mountains. It is commonly amorphous, ſometimes cryſtallized in ſhort hexagonal priſms: Colour black, or browniſh black: Luſtre 3 to 4: Structure ſlaty: Fragments rhomboidal: Hardneſs 6 to 7: S cific gravity 1·3: Often ſtains the fingers: Bu preciſely like the laſt ſpecies, and leaves o white aſhes. According to Dolomieu, it is co poſed of 64 parts charcoal, 32·5 ſilica, 3·5 i It is probable, that the charcoal in the two ſubſtances is in the ſame ſtate in which it ex in plumbago, combined with oxygen, but containing ſo much as plumbago does." T name *anthracite* was given it by M. Hauy, fr ανθραξ, a coal.

"Genus III. Bitumen.

"By *bitumen* is underſtood by mineralog in general, an oil which is found in different pa of the earth in various ſtates of conſiſtence. (S Asphaltum, § 1, 2; Bitumen, § 1—5; a Chemistry, *Index*.) Theſe different ſtates fo diſtinct ſpecies; in the arrangement of whic ſhall be guided by the obſervations of Mr Ha chett, in his valuable paper on bituminous ſu ſtances.

"*Sp.* 1. Naphtha. This ſubſtance is fou ſometimes on the ſurface of the water of ſprin and ſometimes iſſuing from certain ſtrata. I found in great abundance in Perſia. It is as fl and tranſparent as water: Colour white or y lowiſh white: Smell ſtrong, but not diſagreeab Specific gravity, when white, 0·708 or 0·729 when yellowiſh, 0·8475. Feels greaſy: Catche fire on the approach of flame, burns with a whit flame, and leaves ſcarce any reſiduum. Inſolubl in alcohol: Does not freeze at 0° Fahren. When pure naphtha is expoſed to the air, it become yellow and then brown; its conſiſtence is increaſ ed, and it paſſes into *petroleum*." (See Chemistry, *Index*; Naphtha, and Petroleum.)

"*Sp.* 2. Petroleum. This ſubſtance is alſ found in Perſia, and in many countries in Europe, particularly Italy, France, Switzerland Germany, Sweden, England, and Scotland. No ſo fluid nor tranſparent as water: Colour yellow either pale or with a ſhade of red or green; reddiſh brown, and reddiſh black. Smell that o naphtha, but leſs pleaſant. Specific gravit 0·8783. When burnt, it yields a ſoot, and leav a ſmall quantity of coally reſiduum. By expoſure to the air, it becomes like tar, and is the called *mineral tar*." See Chemistry, *Index* and Petroleum.

"*Sp.* 3. *Mineral Tar.* This ſubſtance is foun in many parts of Aſia, America, and Europe. I is viſcid, and of a black, browniſh black, or reddi colour. Smell ſometimes ſtrong, but often fain Specific gravity 1·1. When burnt emits a diſagreeable bituminous ſmell. By expoſure to th air, it paſſes into *mineral pitch* and *maltha*.

"*Sp.* 4. *Mineral Pitch* and *Maltha.* "Th ſubſtance has a ſtrong reſemblance to commo pitch. When the weather is warm, it is ſoft, an has ſome tenacity. It is then called *adheſive mineral pitch*; when the weather is cold it is brittle; its hardneſs is 5; and its fracture has a gla ſy luſtre In this ſtate it is called *maltha*. Colou black, dark brown, or reddiſh: Luſtre 0: paque: Sp. gravity from 1·45 to 2·07: Does n ſtain the fingers. On a white hot iron it flam with a ſtrong ſmell, and leaves a quantity of gre aſhes. It is to the preſence of the earths, whic

compo

compoſe theſe aſhes, that the great ſpecific gravity of this bitumen is to be aſcribed. By further induration it paſſes into *aſphalt*.

"*Sp.* 5. Asphalt is found abundantly in many parts of Europe, Aſia, and America, eſpecially in the iſland of Trinidad. Colour black; or browniſh black: Luſtre greaſy 2: Opaque: Fracture conchoidal; of a glaſſy luſtre: Hardneſs 7 to 8: Very brittle: Specific gravity 1·07 to 1·165: Feels ſmooth, but not greaſy: Does not ſtain the fingers: Has little or no ſmell, unleſs when rubbed or heated. When heated, melts, ſwells, and inflames; and when pure, burns without leaving any aſhes. Aſphalt is manufactured in France, and uſed for greaſing the wheels of carriages." See Asphaltum, § 1; and Chemistry, *Index*.

"*Sp.* 6. Elastic Bitumen. *Mineral Caoutchouc*. This ſubſtance was found about 1786, in the lead mine of Odin, near Caſtletown, Derbyſhire. It was firſt mentioned by M. De Born. Colour yellowiſh, or reddiſh brown. In its appearance it has a ſtrong reſemblance to Caoutchouc, or Indian Rubber; (See Chemistry, *Index*.) hence its name. Conſiſtency various; ſometimes ſo ſoft as to adhere to the fingers; ſometimes nearly as hard as aſphalt. When ſoft it is elaſtic; when hard brittle. Specific gravity 0·9053 to 1·0233. Inſoluble in alcohol, ether, and oil of turpentine; but ſoluble in oil of olives: not affected by nitric acid: When diſtilled it yields a bituminous oil, inſoluble in alcohol; the reſiduum is carbonaceous.

"There is a *variety* of this ſubſtance found in a rivulet near the mine of Odin, which, when freſh cut, exactly reſembles fine cork in colour and texture; but in a few days after, being expoſed to the air, becomes of a pale reddiſh brown. This ſubſtance contains within it a nucleus of elaſtic bitumen. It ſeems to be the elaſtic bitumen altered by the water.

"Genus IV. Coal.

"The ſubſtances belonging to this genus are compoſed of Carbon, or rather Charcoal, and bitumen." See Chemistry, *Index*.

"*Sp.* 1. Jet. This ſubſtance is found in France, Spain, Germany, Britain, and other countries; in detached kidney-form maſſes, of various ſizes, from an inch to 7 or 8 feet in length. Colour full black: Luſtre 3 to 4: internal glaſſy: Opaque: Hardneſs 7 to 8: Not near ſo brittle as aſphalt: Texture [illegible]: Fracture conchoidal: Specific gravity 1·259. It has no odour, but when heated, it reſembles aſphaltum in its odour. Melts in a ſtrong heat, burns with a greeniſh flame, and leaves an earthy reſiduum: Becomes ſomewhat electric by friction: When diſtilled yields a peculiar acid." For its other properties and uſes, ſee Jet, § 2.

"*Sp.* 2. Cannel Coal. This mineral is found in Lancaſhire, and in different parts of Scotland, where it is named *Parrot Coal*. Colour black: Luſtre common, 2: Opaque: Structure ſometimes ſlaty: Texture compact: Fracture conchoidal: Hardneſs 5 to 8: Brittle: Specific gravity 1·232 to 1·426: Does not ſtain the fingers: Kindles eaſily and burns with a bright white flame, like a *candle*; (hence the name:) It does not cake: It leaves a ſtony or ſooty reſiduum. A ſpecimen from Lancaſhire, analyſed by Kirwan, contained 75·2 charcoal, 21·68 maltha, 3·1 alumina and ſilica. A ſpecimen of the ſlaty kind from Ayrſhire, called *Splent Coal*, was compoſed of 47·62 charcoal, 32·52 maltha, 20 earths." For its other properties and uſes, ſee Ampelites, and Coal, § III. N° 2.

"*Sp.* 3. *Common* Coal. This very uſeful combuſtible is never found in the primitive mountains, but only in the ſecondary, or in plains formed of the ſame materials with them. It is always in ſtrata, and generally alternates with clay, ſandſtone, or lime-ſtone. Colour black, more or leſs perfect: Luſtre uſually greaſy or metallic, 2 to 4: Opaque: Structure generally ſlaty: Texture often foliated: Fracture various: Hardneſs 4 to 6: Specific gravity 1·25 to 1·37, uſually ſtains the fingers: Takes fire more ſlowly and burns longer than the laſt ſpecies: Cakes more or leſs during combuſtion. Of this ſpecies there are many varieties, diſtinguiſhed in Britain by the names of *Caking coal, rock coal*, &c." For theſe and its other properties, mines, manner of working them, &c. See Coal, § III. 1—7; Coal-mines, § 1—10; Coal-work, § 1—10; Lithanthrax, Xylanthrax, &c.

"Mr Kirwan analyſed a variety of different kinds of coal. The reſults of his experiments were as follow:

Whitehaven	*Wigan*	*Swanſea*	*Leitrim*	
57·0	61·73	73·53	71·43	charcoal.
41·3	36·7	23·14	23·37	malth. & aſph.
1·7	1·57	3·33	5·2	earths.

"*Sp.* 4. *Spurious coal.* This mineral is generally found amidſt ſtrata of genuine coal. It is alſo called *Parrot coal* in Scotland. Colour greyiſh black: Luſtre 0 to 1. Structure uſually ſlaty: Texture earthy: Hardneſs 7 to 8: Sp. gravity 1·5 to 1·6: Generally explodes and burſts when heated. Compoſed of charcoal, maltha, and aſphalt, and above 0·2 of ſtony matter.

"Genus V. Amber.

"*Sp.* 1. *Common amber.* This ſubſtance, called Electrum by the ancients, is found in different countries; but moſt abundantly in Pruſſia, either on the ſea-ſhore, or under ground, at the depth of about 100 feet, repoſing on wood coal." (See Amber, § 7.) "It is in lumps of different ſizes. Colour yellow: Luſtre 3 to 2: Tranſparency 2 to 4: Fracture conchoidal: Hardneſs 4 to 6: Sp. gravity 1·078 to 1·085: Becomes electric by friction. If a piece of amber be fixed upon the point of a knife, and then kindled, it burns to the end without melting. By diſtillation it yields the ſuccinic acid." For its other properties, uſes, &c. See Amber, § 1—9; and Chemistry, *Index*.

Chap. VII. "Class IV. Metallic Ores.

"This claſs comprehends all the mineral bodies, compoſed either entirely of metals, or of which metals conſtitute the moſt conſiderable and important part. It is from the minerals belonging to this claſs, that all metals are extracted. As the metals at preſent known amount to 21, I ſhall divide this claſs into 21 orders, allowing a diſtinct order for the ores of every particular metal." To theſe we ſhall add a 22d order reſpecting the *new metal*, deſcribed by Dr Thomson in his Appendix to Vol. IV.

" Metals exiſt in ores in one or other of the 4 following ſtates: 1. In a metallic ſtate, and either ſolitary or combined with each other. 2. Combined with ſulphur. 3. In the ſtate of oxides. 4. Combined with acids. Each order therefore may be divided into the 4 following genera: 1. ALLOYS. 2. SULPHURETS. 3. OXIDES. 4. SALTS.

" It muſt be obſerved, however, that every metal has not hitherto been obſerved in all theſe 4 ſtates, and that ſome of them are hardly ſuſceptible of them all. Some of the orders therefore want one or more genera; as may be ſeen from the following Table: ORDER I. *Gold ores*. 1. Alloys. Ord. II. *Platinum ores*. 1. Alloys. Ord. III. *Silver ores*. 1. Alloys. 2. Sulphurets. 3. Oxides. 4. Salts. Ord. IV. *Ores of Mercury*. 1. Alloys. 2. Sulphurets. 3. Salts. 4 Oxides. Ord. V. *Copper ores*. 1. Alloys. 2. Sulphurets. 3. Oxides. 4 Salts. Ord. VI. *Iron ores*. 1. Alloys. 2. Sulphurets. 3. Carburets. 4. Silicated Iron. 5. Oxides. 6 Salts. Ord. VII. *Tin ores*: 1. Sulphurets. 2. Oxides. Ord. VIII. *Lead ores*. 1. Sulphurets. 2. Oxides. 3. Salts. Ord. IX. *Nickel ores*. 1. Sulphurets. 2. Oxides. 3. Salts. Ord. X. *Zinc ores*. 1. Sulphurets. 2. Oxides. 3. Salts. Ord. XI. *Antimony ores*. 1. Alloys. 2. Sulphurets. 3. Oxides. 4. Salts. Ord. XII. *Biſmuth ores*. 1. Alloys. 2. Sulphurets. 3. Oxides. Ord. XIII. *Tellurium ores*. 1. Alloys. Ord. XIV. *Arſenic ores*. 1. Alloys. 2. Sulphurets. 3. Oxides. Ord. XV. *Cobalt ores*. 1. Alloys. 2. Sulphurets. 3. Oxides. 4. Salts. Ord. XVI. *Mangane ſe ores*. 1. Oxides. 2. Salts. Ord. XVII. *Tungſten ores*. 1. Oxides. Ord. XVIII. *Molybdenum ores*. 1. Sulphurets. Ord. XIX. *Uranium ores*. 1. Oxides. Ord. XX. *Titanium ores*. 1 Oxides. Ord. XXI. *Chromum ores*. 1. Oxides". Ord. XXII. *Columbium ores*. 1. Salts.

" ORDER I. ORES OF GOLD.

" No metal, perhaps, if we except iron, is more widely ſcattered through the mineral kingdom than gold. Hitherto it has been found only in a metallic ſtate; moſt commonly in grains, ramifications, leaves, or rhomboidal, octahedral or pyramidal cryſtals. It is generally mixed with quartz, though there are inſtances of its having occurred in calcareous rocks. It is not uncommon alſo to find it diſſeminated through the ores of other metals; eſpecially iron, mercury, copper and zinc. The greateſt quantity of gold is found in the warmer regions. It abounds in the ſands of many African rivers, and is very common in S. America and India. Europe, however, is not deſtitute of this metal. Spain was famous in ancient times for its gold mines; and ſeveral rivers in France contain it in their ſands. But the principal gold mines in Europe are thoſe of Hungary, and next to them thoſe of Saltzburg. Gold has alſo been diſcovered in Sweden and Norway, and more lately in the county of Wicklow in Ireland." There were alſo gold mines formerly in the county of Lanark. See Sir J. Sinclair's *Stat. Acc.* Vol. IV. p. 515; and vi. 276. See alſo CHEMISTRY, *Index*; GOLD. § I, 1—16: and METALLURGY, *P.* II; *S.* I & IV.

" GENUS I. ALLOYS *of* GOLD.

" *Sp. Native Gold* is never completely pure; it is alloyed with ſome ſilver or copper, and ſometimes with iron. In the native gold found in Ireland, indeed, the quantity of alloy appears to hav been exceedingly ſmall. Its colour is yellow Luſtre metallic: Fracture hackly: Hardneſs 5 Specific gravity from 12 to 19.

" ORDER II. ORES *of* PLATINUM.

" Hitherto no mine of Platinum has been di covered. It is found in ſmall ſcales or grains i the ſands of the river Pinto, at Choco, Popaye and Quito in Peru, and near Carthagena in S America. It is always in a metallic ſtate, and a ways combined with iron.": See CHEMISTRY, *In* METALLURGY, *Part* II, *Sect.* II, and PLATINA.

" Genus I. ALLOYS *of* PLATINUM.

" *Sp.* 1. *Native* PLATINUM. *Platina.* Its co lour is whitiſh iron grey: Magnetic: Sp. gravit 12 to 16: Soluble in nitro-muriatic and oxy-mu riatic acids. M. PROUST has proved, that th mineral, beſides platinum and iron, contains alſ copper, plumbago, ſulphur and phoſphorus.

" ORDER III. ORES *of* SILVER.

" SILVER is found moſt commonly in quart limeſtone, hornſtone; or combined with the ore of other metals, moſt commonly with coppe antimony, zinc, cobalt and lead. This laſt meta indeed is ſeldom totally deſtitute of ſilver." Se CHEMISTRY, *Index*; LEAD, § I, 5, METAL LURGY, *P.* II, § III, IV; *P.* III § III; and SILVE

" GENUS I. ALLOYS *of* SILVER.

" *Sp.* 1. *Native ſilver*, ſo called becauſe the ſi ver is nearly in a ſtate of purity, forms the prin cipal part of ſome of the richeſt ſilver mines in th world. It is ſometimes in ſmall lumps; ſometime cryſtallized in cubes, hexahedrons, octahedron or dodecahedrons; ſometimes in leaves, or thread often ſo connected with each other as to reſembl branches of trees, and therefore called *dendrite* The ſilver in the famous mines of POTOSI has th laſt form. When newly extracted, it is not unlik ſmall branches of fir. The colour of native ſilve is white; often tarniſhed: Luſtre metallic; Frac ture hackly: Hardneſs 6; Malleable: Sp. gravit from 10 to 10·338. The ſilver in this ſpecies almoſt conſtantly alloyed with from 0·03 to 0· of ſome other metal, frequently gold or arſenic.

" *Sp.* 2. ALLOY *of* SILVER *and* GOLD. *Aurife ous native ſilver.* This alloy is not uncommon ſilver mines. Its colour is yellowiſh white: Lu tre metallic: Hardneſs 5: Malleable: Sp. grav ty above 10·6. Dr FORDYCE found a ſpecime from Norway, compoſed of 72 parts ſilver, an 28 gold.

" *Sp.* 3. ALLOY *of* SILVER *and* ANTIMON *Antimoniated ſilver ore.* This alloy, which found in the mines of Spain and Germany, ſometimes in grains or lumps, and ſometim cryſtallized in ſix-ſided priſms, whoſe ſides a longitudinally channelled. Its colour is white Luſtre metallic: Hardneſs 10: Brittle: Sp. gravi from 9·4406 to 10. Texture foliated: Fractur conchoidal: Before the blow-pipe the antimon evaporates in a grey ſmoke, and leaves a brown ſlag, which tinges borax green. If borax be uſe at firſt, a ſilver bead may be obtained. This all was long ſuppoſed to contain arſenic. Bergma examined it, and found only ſilver and antim y His analyſis has been confirmed by the exp ments of Vauquelin and Selb. According t SELB, it is compoſed of 89 parts of ſilver, and

antimon

antimony: A ſpecimen analyſed by Klaproth contained 84 ſilver, 16 antimony: another contained 76 ſilver, and 24 antimony.

"Genus II. Sulphurets of Silver.

"*Sp.* 1. Common Sulphuret *of* Silver. *Vitreous Silver Ore.* This ore occurs in the ſilver mines of Germany and Hungary. It is ſometimes in maſſes, ſometimes in threads, and ſometimes cryſtallized. Its cryſtals are either cubes or regular octahedrons, whoſe angles and edges are often varioaſly truncated." (See De Liſle, *Cryſt.* iii. 44.) "Its colour is dark bluiſh grey, inclining to black; often tarniſhed: Internal luſtre metallic: Texture foliated: Fracture uneven: Hardneſs 4 to 5: may be cut with a knife like lead: Flexible and malleable: Sp. gravity 6·909 to 7·215. In a gentle heat the ſulphur evaporates. Melts when heated to redneſs. A ſpecimen, analyſed by Klaproth, contained 85 ſilver, and 15 ſulphur.

"*Sp.* 2. Antimoniated Sulphuret *of* Silver. *Sulphuret of ſilver with antimony and iron.* This ore, which occurs in Saxony and Hungary, ſeems to be ſulphuret of ſilver contaminated with antimony and iron, and ought therefore to be conſidered as a variety of the laſt ſpecies. It is ſometimes in maſſes, but oftener cryſtallized in ſix-ſided priſms, tables or rhomboids; generally indiſtinct and accumulated together. Its colour is iron grey, often tarniſhed: Its luſtre metallic: Fracture uneven: Hardneſs 4 to 5: Brittle: Sp. gravity 7·208. Before the blow-pipe the ſulphur and antimony exhale, leaving a bead, which may be freed from iron by fuſion with nitre and borax. A ſpecimen analyſed by Klaproth contained 66·5 ſilver, 12 ſulphur, 10 antimony, 5 iron, 1 ſilica, and 0·5 arſenic and copper.

"*Sp.* 3. Sulphuret *of* Silver *and* Copper. *Cupriferous ſulphurated ſilver ore.* This ore, which is found in the Korbolokinſk mountains in Siberia, was firſt deſcribed by Mr Renovantz. It is in amorphous maſſes, varying in ſize from that of the thumb to that of the fiſt. Its colour is bluiſh grey like lead: Luſtre metallic: Hardneſs 5 to 6: Brittle. Its powder, when rubbed on the ſkin, gives it a black colour, and leaden gloſs. Before the blow-pipe the ſulphuret of ſilver melts readily; that of copper with difficulty. This ore is compoſed of about 42 ſilver, 21 copper, and 35 ſulphur.

"Genus III. Oxides *of* Silver.

"*Sp.* 1. *Calciform ſilver ore.* This ore was firſt deſcribed by Mr Windenman. It is ſometimes in maſſes, ſometimes diſſeminated through other minerals. Its colour is greyiſh black: ſtreak bright: Luſtre metallic: Fracture uneven: Hardneſs 4 to 5: Brittle: Spec. gravity conſiderable: Effervesces with acids: melts eaſily before the blow-pipe: Froths with borax. According to Selb, it contains 72·5 ſilver, 15·5 antimony, 12 carbonic acid, and a little copper.

"*Sp.* 2. *Red ſilver ore.* This ore is very common in ſeveral German mines. It occurs in maſſes, diſſeminated and cryſtallized. The primitive form of its cryſtals is a dodecahedron, whoſe ſides are equal rhombs, and which may be conſidered as a ſix-ſided rhomboidal priſm, terminated by three-ſided ſummits. Sometimes the priſm is lengthened; ſometimes its edges, or thoſe of the terminating ſummit, or both, are wanting.—Its colour is commonly red: Streak red: external luſtre metallic, internal common. Tranſparency from 3 to 1; ſometimes opaque: Fracture flat conchoidal: Hardneſs 5 to 7: Brittle: Specific gravity from 5·44 to 5·592. Becomes electric by friction, but only when inſulated. Soluble in nitric acid without effervеſcence: Before the blow-pipe melts, blackens, burns with a blue flame, gives out a white ſmoke with a ſlight garlic ſmell, and leaves a ſilver bead.

"*Var.* 1. *Light Red.* Colour intermediate between blood and cochineal red; ſometimes variegated: Streak orange red: Powder black.

"*Var.* 2. *Dark red.* Colour between dark cochineal red and lead grey; ſometimes nearly black and without any ſhade of red. Streak dark crimſon red. Klaproth firſt aſcertained its compoſition; and his analyſis was confirmed by Vauquelin, who found a ſpecimen compoſed of 56·6748 ſilver, 16·13 antimony, 15·0666 ſulphur, 12·1286 oxygen.—It ſometimes contains a minute portion of arſenic, but never more than 0·02.

"Genus IV. Salts of Silver.

"*Sp.* 2. Muriat *of* Silver. *Corneous ſilver ore.* This ore occurs at Johanngeorgenſtadt in Saxony, in S. America, &c. It is often amorphous, ſometimes nearly in powder, and ſometimes cryſtallized in cubes or parallelopipeds. Its colours are various: when expoſed to the light it becomes brown: Internal luſtre greaſy, 2; external 2 to 1: Acquires a gloſs when ſcraped with a knife. Tranſparency 2 to 1: Texture foliated: Hardneſs 4 to 5: Sp. gravity 4·745 to 4·804. Before the blow-pipe it inſtantly melts, and gradually evaporates; but may be reduced by adding an alkali. That it contains muriatic acid has been long known. Mr Woulfe firſt ſhewed that it contained alſo ſulphuric acid; and this has been confirmed by Klaproth, according to whoſe analyſis it is compoſed of 67·75 ſilver, 6 oxide of iron, 21 muriatic acid, 0·25 ſulphuric acid, 1·75 alumina. Sometimes the alumina amounts to 0·67 of the whole.

"Order IV. Ores of Mercury.

"Mercury abounds in Europe, particularly in Spain, Germany and Hungary: alſo in China, the Philippines, and Peru. The moſt productive mines of mercury are thoſe of Idria; of Almaden near Cordova in Spain, which were wrought by the Romans; of the Palatinate; and of Guanca Velica in Peru. Mercury has never been found in Britain, nor has any mine worth working been diſcovered in France. It occurs moſt commonly in argillaceous ſhiſtus, limeſtones, and ſandſtones." See Chemistry, *Index*; Mercury, § 4; Metallurgy, *Part* I, *Sect.* I; *Part* II, *Sect.* IX; *Part* III, *Sect.* IX; and Quicksilver.

"Genus I. Alloys *of* Mercury.

"*Sp.* 1. *Native* Mercury is found in moſt mercurial mines, in ſmall globules, ſcattered thro' different kinds of ſtones, clays and ores.—Fluid: Colour white. Sp. gravity about 13·6.

"*Sp.* 2. Amalgam *of* Silver. *Native amalgam.* This mineral has been found in the ſilver mine of Shalberg, in Dalecarlia, Sweden: in the mines of Deux Ponts, &c.; in thin plates, or grains, or cryſtallized in cubes, parellelopipeds, or pyramids. Colour ſilvery white or grey: Luſtre metallic: Creaks when cut. Sp. gravity above 10. Tinges gold white. Before the blow-pipe the mercury evaporates, and leaves the ſilver. A ſpecimen, analyſed by Klaproth, contained 64 mercury, and 36 ſilver. Sometimes it contains a mixture of alumina, and ſometimes the proportion of mercury is ſo great, that the amalgam is nearly as ſoft as paſte.

"Genus II. Sulphurets *of* Mercury.

"*Sp.* 1. *Native* Cinnabar. This ore, which is found in almoſt all mercurial mines, is ſometimes in veins, ſometimes diſſeminated, ſometimes in grains, and ſometimes cryſtallized. The form of its cryſtals is a tetrahedron, or three-ſided pyramids, commonly wanting the ſummit; ſometimes 2 pyramids are joined baſe to baſe; and ſometimes a three-ſided priſm is interpoſed between them. Colour red: Streak red and metallic: Luſtre when cryſtallized 2 to 3; when amorphous often 0. Texture foliated: Hardneſs 3 to 8: Sp. gravity 5·419 to 10·1285: Before the blow-pipe evaporates with a blue flame and ſulphureous ſmell: Inſoluble in nitric acid.

"*Var.* 1. *Dark red.* Colour cochineal red: Hardneſs 6 to 7: Sp. gravity, when pure, 10·1285; ſometimes only 7·2, or even 6·188.

"*Var.* 2. *Bright red.* Colour commonly ſcarlet: Sp. gravity 6·9022 to 5·419.

"*Sp.* 2. *Hepatic mercurial ore.* This ore, which is the moſt common in the mines of Idria, is always amorphous, and often mixed with native mercury and cinnabar. Colour ſomewhat red: Streak dark red and brighter: Luſtre metallic: Hardneſs 6 to 8: Spec. gravity 9·2301 to 7·186. When heated the mercury evaporates: Inſoluble in nitric, and ſoluble in muriatic acid. When pureſt, it contains about 0·77 of mercury: alſo ſome ſulphur and iron.

"Genus III. Mercurial Salts.

"*Sp.* 1. Muriat *of* Mercury. *Corneous Mercury.* This ore, which occurs in the Palatinate, is ſometimes in ſcales, ſometimes in grains, and ſometimes cryſtallized. Its cryſtals are either ſmall four or ſix-ſided priſms, whoſe ſides are rhombs; or cubes; or four-ſided pyramids wanting their angles. They are very ſmall, and generally confuſed. Colours various, ofteneſt white, when the luſtre is pearly: Sometimes opaque, ſometimes ſemi-tranſparent. Evaporates before the blow-pipe. Mr Woulfe diſcovered that this ore contains ſome ſulphuric acid, which ſometimes exceeds the muriatic.

"Order V. Ores of Copper.

"Copper mines abound in moſt countries. They are wrought in China, Japan, Sumatra; the north of Africa; in Chili and Mexico; and in moſt parts of Europe, eſpecially Britain, Germany, Ruſſia, and Sweden. Copper is found moſt commonly in rocks of hornblende, ſhiſtus and quartz." See Chemistry, *Index;* Copper, § I—XIII.; and Metallurgy, *Part* II. *Sect.* V.; and *Part* III. *Sect.* IV.

"Genus I. Alloys *of* Copper.

"*Sp.* 1. *Native Copper* occurs in the greater number of copper mines; in maſſes; in plates and threads of various forms; and ſometimes, as in Siberia, cryſtallized in cubes. Colour commonl that of copper, ſometimes dark brown: Luſt metallic: Streak brighter: Fracture hackly: flex ble and malleable: Hardneſs 6 to 7: Sp. gravit 7·6 to 8·5844.

"*Sp.* 2. *White Copper ore. Alloy of Copper, iro and arſenic.* This ore is uncommon; it occurs maſſes: Colour white: Luſtre metallic: Fractu uneven: Hardneſs 8 to 9: Brittle: Sp. gravi conſiderable. Before the blow-pipe gives out white arſenical ſmoke, and melts into a black ſla

"Genus II. Sulphurets *of* Copper.

"*Sp.* 1. *Common Sulphuret of Copper. Vitreo Copper ore.* This ore, which is found in Cornwa Hungary, and Siberia, occurs in maſſes, plate threads, and cryſtallized in ſix-ſided priſms, four-ſided pyramids, joined baſe to baſe. Colo bluiſh grey: Streak brighter grey: Luſtre meta lic: Hardneſs 4 to 7: Sp. gravity 5·452 to 5·56 ſometimes ſo low as 4·129. Detonates with nitr Before the blow-pipe it melts eaſily; and, whi in fuſion, exhibits a green pearl, which on cooli is covered with a brown cruſt. Tinges bor green. Werner makes two varieties; called t *compact*, and the *foliated*, from their texture.

"*Sp.* 2. *Copper* Pyrites. *Yellow Copper o* This ore, which is probably ſulphuret of ir combined with copper, is found often in copp mines, mixed with pyrites or ſulphuret of iro It is ſometimes amorphous, ſometimes cryſtall zed. Its cryſtals are either three or four-ſided p ramids applied baſe to baſe, or ſix-ſided plate Its colour is yellow; often tarniſhed: inten luſtre metallic: Hardneſs 6 to 7; ſometimes Brittle: Sp. gravity 4·314 to 4·08. Deflagrate but does not detonate with nitre. Before t blow-pipe decrepitates, gives a greeniſh ſulphur ous ſmoke, and melts into a black maſs, whic tinges borax green. Does not efferveſce with n tric acid.

"*Sp.* 3. *Purple Copper ore* is found in maſſes, plates, or diſſeminated; ſometimes cryſtallized octahedrons. Colour moſt commonly purple, i ternally reddiſh: Streak reddiſh and bright: Lu tre metallic: Hardneſs 6 to 7: Brittle. Sp. gr vity 4·956 to 4·983. Effervesces with nitric aci and tinges it green: Deflagrates with nitre: B fore the blow-pipe melts readily without ſmok vapour, or ſmell; but is not reduced. Ting borax a bright green. A ſpecimen, analyſed Klaproth, contained 58 copper, 18 iron, 19 ſu phur, 5 oxygen.

"*Sp.* 4. *Grey Copper ore* is found in Cornwa Saxony, Hungary, &c. It is often amorphou but often alſo cryſtallized. The primitive for of its cryſtals is the regular tetrahedron; but general either the angles or the edges, or bot are truncated or bevelled. Colour ſteel grey: o ten tarniſhed, and then dark grey: Streak dar grey; ſometimes reddiſh brown; powder black iſh: Luſtre metallic: Hardneſs 7 or 8: very bri tle: Sp. gravity 4.8648. Deflagrates with nitr Before the blow-pipe crackles, but melts eſp cially if aſſiſted by borax. The bead gives a whit ſmoke, without ſmell; tinges borax yellow o browniſh red, but does not unite with it. A ſp cimen from Cremnitz, analyſed by Klaproth, co tained 31 parts copper, 14 ſilver, 34 antimony,

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iron, and 11 ſulphur. Naion, in an ore from Laſſo, found copper, ſilver, and antimony, in the ſame proportions, but more iron and ſome arſenic. Savoresi, beſides Klaproth's ingredients, found ſome gold and mercury: and Klaproth found lead in moſt other ſpecimens.

"Genus III. Oxides *of* Copper.

"Sp. 1. *Red Copper Ore. Red Copper Glaſs.* This ore is found in Cornwall and many other countries, in maſſes, diſſeminated, in ſcales, and cryſtallized. The figure of its cryſtals is the regular octahedron. Colour cochineal red: Streak bright red: Luſtre ſemimetallic: tranſparency, when amorphous, generally 0; when cryſtallized, 3 or 4: Hardneſs from 4 to 7: ſoluble with effervescence in nitric acid. Before the blow-pipe melts eaſily, and is reduced. This ore has been analyſed by Mr Chevenix, who found it when pure to conſiſt entirely of the orange oxide of copper.

"Werner has made 3 *varieties* of this ore, from their texture named *compact*, *foliated*, and *fibrous*. The 1ſt is ſeldom found cryſtallized and is opaque; the 2d occurs amorphous, cryſtallized, and in ſcales; the 3d is carmine, ruby or ſcarlet red; and occurs in ſhort capillary cryſtals, or delicate flakes. This ore ſometimes contains a mixture of red oxide of iron; it is then called *brick red copper ore*, *copper malm*, or *copper ochre*. This ore is ſometimes mixed with bitumen. Its colour is then browniſh black, and it is called *pitch ore*.

"Sp. 2. *Green Sand of Peru.* This ore, brought from Peru by Dombey, is a graſs green powder, mixed with grains of quartz. When thrown on burning coals, it communicates a green colour to the flame. It is ſoluble both in nitric and muriatic acids, without effervescence. The ſolution is green.

"Genus IV. Salts *of* Copper.

"Sp. 1. Blue carbonat *of* Copper. *Mountain Blue. Azur de Cuivre. Blue Calx of Copper. Kupfer Lazur.* This ore, which occurs in the copper mines of Siberia, Sweden, Germany, Hungary, Cornwall, &c. is either amorphous or cryſtallized. The cryſtals are ſmall and difficult to examine. De Liſle ſays, their primitive form is an octahedron, the ſides of which are iſoſceles triangles, and two of them more inclined than the others. The cryſtals are often rhomboidal priſms, either regular or terminated by dihedral ſummits. Colour azure or ſmalt blue: Streak blue: Hardneſs 4 to 6: Brittle: Sp. gravity 3·608. It effervesces with nitric acid, and gives it a blue colour. Before the blow-pipe it blackens, but does not melt: Tinges borax green with effervescence. The cryſtals, according to Pelletier, are compoſed of 66 to 70 copper, 18 to 20 carbonic acid, 8 to 10 oxygen, and 2 water. Fontana firſt diſcovered that this ore contained carbonic acid gas. The copper is evidently in the ſtate of hydrat.

"*Var.* 1 *Mountain blue* generally contains a mixture of lime. It is never cryſtallized; and ſometimes is almoſt in the ſtate of powder. Luſtre 0: texture earthy.

"*Var.* 2. *Striated blue carbonat of Copper.* Luſtre glaſſy. Tranſparency, when cryſtallized, 2; when amorphous 1: texture ſtriated; ſometimes approaching to the foliated.

"*Sp.* 2. *Green* Carbonat *of Copper. Malachite.* This ore is generally amorphous, but ſometimes cryſtallized in four-ſided priſms, terminated by four-ſided pyramids. Colour green. Luſtre ſilky: Hardneſs 5 to 7: Brittle. Sp. gravity 3·571 to 3·653. Effervesces with nitric acid, and gives a blue colour to ammonia. Before the blow-pipe it decrepitates and blackens, but does not melt. Tinges borax yellowiſh green. It is compoſed of carbonic acid and green oxyd of iron." See Chemistry, *Index*; and Malachite, § 1, 2.

"*Var.* 1. *Fibrous Malachite.* Texture fibrous: opaque when amorphous; when cryſtallized its tranſparency is 2: Colour graſs green.

"*Var.* 2. *Compact Malachite.* Texture compact: opaque: colour varies from dark emerald green to blackiſh green.

"A ſpecimen from Siberia, analyſed by Klaproth, contained 58 copper, 18 carbonic acid, 12·5 oxygen, 11·5 water.

"This ſpecies is ſometimes mixed with clay, chalk, and gypſum, in various proportions; it is then named

"*Common mountain green.* Its colour is verdigris green: Luſtre 0: Tranſparency 0 to 1: Hardneſs 3 to 4: Brittle: Texture earthy. Effervesces feebly with acids. Before the blow-pipe it exhibits the ſame phenomena as malachite.

"*Sp.* 3. Sulphat *of Copper* is found ſometimes diſſolved in water." See Chemistry, *Index*; and Mineral Waters, § 15.

"*Sp.* 4. *Arſeniat of Copper* was diſcovered about 20 years ago in the Carrarach mine in Cornwall; but it had become ſcarce, till it was found in abundance in the Huel Garland mine. Specimens were carried to London, and admirably deſcribed and analyſed by Count Bournon and Mr Chevenix. It is moſt commonly cryſtallized: colour blue or green; ſometimes brown; when decompoſing almoſt black: generally tranſparent: Hardneſs 4 to 8: Spec. gravity 2·548 to 4·280. There are 4 varieties.

"*Var.* 1. *Octahedral Arſeniat.* Cryſtallized in obtuſe octahedrons, compoſed of 2 four-ſided pyramids with iſoſceles triangular faces, two of which are more inclined than the other two. Colours deep ſky blue, graſs green or bluiſh white. Sp. gravity 2·881: Tranſparency 2 to 3: Hardneſs 6.

"*Var.* 2. *Hexahedral A.* Cryſtallized in thin hexahedral laminæ; the 6 faces inclined alternately towards the oppoſite ſides of the plates, ſo that 3 lie one way, and 3 another. Colour deep emerald green: deviſible into thin plates like mica. Spec. gravity 2·548: Hardneſs 5: tranſparency of thin plates 4. Decrepitates when heated.

"*Var.* 3. *Acute Octahedral A.* Cryſtallized in acute octahedrons, compoſed of pyramids having 2 faces more inclined than the other 2: Sometimes in four-ſided rhomboidal priſms with angles of 84° and 96°, and terminated by dihedral ſummits: edges often truncated. Colour brown or dark bottle green: Tranſparency 3 to 4: Sp. gravity 4·280: Hardneſs 8.

"*Var.* 4. *Trihedral A.* Cryſtallized in trihedral priſms; the baſes equilateral triangles, very ſmall, and various. Sp. gravity 4·280: hardneſs 7: colour bluiſh green; when decompoſing blackiſh."

" Order VI. Ores of Iron.

" Iron is the moſt abundant of metals; it exiſts almoſt every where, and aſſumes the moſt different and even oppoſite ſhapes." (See Chemistry, *Index*; Iron, § I, 1—12. and Metallurgy, *Part* II, *Sect.* VIII. and *Part* III, *Sect.* V.) " This renders it a more difficult taſk to bring its ores under a regular arrangement than thoſe of any other metal. They may, however, be all arranged under 6 different genera.

" Genus I. Alloys of Iron.

" *Sp.* 1. *Native Iron* has been found in Siberia and Peru, in immenſe maſſes, which ſeemed as if they had been fuſed." (See Iron, § I, 8.) " Theſe maſſes evidently did not originate in the places where they were found. Colour bluiſh white: Fracture hackly: Luſtre metallic: Malleable: Magnetic: Hardneſs 8 to 9: Specific gravity 7·8. Proust has diſcovered, that the native iron found in Peru is alloyed with nickel.

" Genus II. Sulphurets *of* Iron.

" *Sp.* 1. Sulphurated Oxide *of* Iron. *Pyrites.* This mineral occurs very frequently, both in ores and mixed with other bodies, for inſtance in ſlates." (See Chemistry, *Index*; Metallurgy, *Part* I, *Sect.* V; *Part* III, *Sect.* I; and Pyrites.) " It is often amorphous, and often cryſtallized. The primitive form of its cryſtals is either a regular cube or an octahedron. The varieties of its form hitherto deſcribed amount to 30. (See Romé De Liſle. *Cryſt.* iii. 208.) Colour yellow: Luſtre metallic: Hardneſs 8 to 10: Brittle: Sp. gravity 3·44 to 4·6. Soluble in nitric acid with effervеſcence: ſcarce ſoluble in ſulphuric acid. Before the blow-pipe burns with a blue flame and a ſulphureous ſmell; and leaves a browniſh bead, which tinges borax of a ſmutty green.

" *Var.* 1. *Common Pyrites.* Fracture uneven: Hardneſs 10: Decrepitates when heated: emits a ſulphureous ſmell when rubbed: Not magnetic: It occurs often in coal mines and ſlates.

" *Var.* 2. *Striated P.* Texture ſtriated: Hardneſs 10: Not magnetic.

" *Var.* 3. *Capillary P.* Colour often ſteel grey. Found in needle-form cryſtals. Uncommon: Not magnetic.

" *Var.* 4. *Magnetic P.* Found in maſſes: Texture compact: Hardneſs 8 to 9: Slightly magnetic: Seems to contain leſs ſulphur than the other varieties.

" Pyrites is compoſed of ſulphur and the black oxide of iron. The proportion of ſulphur is variable, which explains the varieties of its cryſtalline forms.

Genus III. Carburet *of* Iron.

" *Sp.* 1. Plumbago. *Graphite* of Werner. This mineral is found in Britain, Germany, France, Spain, America, &c." (See Chemistry, *Index*; and Lead, N° III.) " It occurs in kidney-form lumps of various ſizes. Its colour is dark iron grey, or browniſh black; when cut, bluiſh grey. Luſtre metallic, from 3 to 4: Opaque: Structure ſlaty: Texture fine-grained: Hardneſs 4 to 5: Brittle: Sp. gravity from 1·987 to 2·089; after being ſoaked in water, 2·15; after being heated 2·3; and when heated after that 2·41. Feels ſomewhat greaſy; ſtains the fingers, and m ſtrongly." Its uſes in pencils and crucibles well known. (See Lead, N° III. and Penc " Its compoſition was diſcovered by Sch When pure it contains 90 carbon, 10 iron : it is often exceedingly impure. A ſpecimen f the mine of Pluffier, in France, analyſed by quelin, contained 23 carbon, 2 iron, 38 ſilic alumina.

" Genus IV. Iron combined with Sili

" *Sp.* 1. *Emery.* This mineral is commonly ſeminated through other foſſils, but in the E. dies it occurs in large maſſes. Its colour is bl grey, greyiſh brown, or bluiſh black, often co ed with a yellow rind; internally it diſcovers or purple ſpots." (See Emery, § 1, 2.) " Lu 1 or 0; in ſome parts 2 and metallic. Op Hardneſs 14: brittle: Sp. gravity 3·92. Be the blow-pipe it blackens and gives a ſmutty low tinge to borax. According to Wieglet contains 95·6 ſilica, and 4·3 iron.

" Genus V. Oxides *of* Iron.

" This genus is very extenſive; for iron is m oftener found in the ſtate of an oxide than in other. The minerals belonging to it may al arranged under two ſpecies, becauſe they all c tain iron, either in the ſtate of black oxide o red. But it will be neceſſary to branch out e of theſe into ſeveral *ſubſpecies*, and theſe again to *varieties*.

" *Sp.* 1. *Black* Oxide. The minerals belong to this ſpecies are all ſomewhat affected by magnet, and they have uſually the metallic lu and appearance. They may be arranged un 5 ſubſpecies.

" *Subſp.* 1. *Octahedral Iron Ore. Common m netic Iron-ſtone.* This ore is very common in S den; it is found alſo in Switzerland, Norw Ruſſia, &c. in maſſes, plates, grains, and cryſt lized. The primitive form of its cryſtals is a gular octahedron. Sometimes two oppoſite fi of the pyramids are trapeziums, which rend the apex of the pyramids cuneiform. Sometim the cryſtals paſs into rhomboidal parallelopipe and into dodecahedrons with rhomboidal fac Its ſurface is browniſh black; internally blu grey: Powder black: Streak blackiſh grey, brig er: Luſtre metallic: Hardneſs 9 to 10: Britt Sp. gravity 4·094 to 4·688: Attracted by the ma net, and generally poſſeſſed of more or leſs ma netic virtue. To this ſubſpecies belongs the *ma net.*" (See Magnet and Magnetism.) " B fore the blow-pipe it becomes browner, but d not melt. Tinges borax dark green. When pu it conſiſts entirely of black oxide of iron; but it often mixed and contaminated with foreign ingr dients.

" *Subſp.* 2. *Magnetic Sand* is found in Italy, Vi ginia, St Domingo, the E. Indies, and in the ſa of the river Don at Aberdeen. It is black, ve hard, magnetic. Sp. gravity about 4·6: Not a tered by the blow-pipe *per ſe*; melts into a bl glaſs with potaſs, and into a green glaſs with m crocoſmic ſalt, both opaque. Kirwan ſuppoſes contains ſome ſilica.

" *Subſp.* 3. *Specular Iron Ore. Fer oligiſte.* Th ore is found abundantly in the iſle of Elba, nea Tuſcany. It is either in maſſes or cryſtalliz

The primitive form of its cryſtals, and of its integrant molecules, is the cube. The varieties hitherto obſerved amount to 7.—For a deſcription and figure of theſe, ſee *De Liſle Cryſt.* iii. 189. Colour ſteel grey; often tarniſhed, and beautifully irideſcent, reflecting yellow, blue, and red: Streak red: Powder dark red: Luſtre metallic: Hardneſs 9 to 10: Not brittle. Sp. gravity 5·0116 to 5·218: Slightly magnetic: Little altered by the blow-pipe: Tinges borax an obſcure yellow. According to Mr Muſhet, it is compoſed of 66·1 iron, 22·2 oxygen, 10·7 water and carbonic acid, and 1 lime.

"*Subſp.* 4. *Micaceous iron ore.* This ore is generally conſidered as a variety of the laſt. Kirwan, however, ſuppoſes it to contain carbon, and to be a diſtinct ſpecies. It is found in Saxony, the iſle of Elba, &c. generally in amorphous maſſes, compoſed of thin ſix-ſided laminæ: Colour iron grey: Streak bluiſh grey: Luſtre metallic: Opaque: Feel greaſy: Hardneſs 5 to 7: Brittle: Sp. gravity 4·5 to 5·07: Slightly magnetic: Infuſible by the blow-pipe: Tinges borax greeniſh brown.

"*Subſp.* 5. *Laminated ſpecular iron ore. Fer Pyroxate* of Hauy. This ore, which is found at Mont d'Or in Auvergne, was uſually arranged under the laſt ſpecies; but has been ſeparated from it by Mr Hauy, becauſe the form of its cryſtals is incompatible with the ſuppoſition that their primitive nucleus is a cube, as is the caſe with common ſpecular iron ore. Its cryſtals are thin octagonal plates, bounded by 6 linear trapeziums, alternately inclined different ways. Colour ſteel grey: Powder reddiſh black: Luſtre metallic; ſurface poliſhed: Fracture glaſſy: Very brittle. Hauy ſuppoſes this ore has been produced by *fire*, and has given it a *name* accordingly.

"*Sp.* 2. Red Oxide. The minerals belonging to this ſpecies are not affected by the magnet; and rarely poſſeſs the metallic luſtre. In all of them the red oxide is combined with ſome ſubſtance; and alumina, or rather clay, is the moſt common ingredient. The oxide of manganeſe, too, ſeems to be preſent. Theſe minerals are numerous, but may be arranged under 4 ſubſpecies.

"*Subſp.* 1. *Brown iron ore* is found abundantly in Britain, particularly in Cumberland, Lancaſhire, and other counties. It conſiſts of the *brown oxide of iron*, contaminated with other ingredients. Colour brown: Streak reddiſh brown: Sp. gravity from 3·4771 to 3·951. Before the blow-pipe, blackens, but does not melt. Tinges borax greeniſh yellow.

"*Var.* 1. *Brown Hæmatites.* The name *Hæmatites* (bloodſtone) was probably applied by the ancients to thoſe ores only which are of a red colour, and have ſome reſemblance to *clotted blood*; but by the moderns it is applied to all the ores of iron which give a reddiſh coloured powder, provided they be of a fibrous texture." (See Hæmatites.) "Brown hæmatites occurs in maſſes of various ſhapes, and it is ſaid alſo to have been found cryſtallized in five or ſix-ſided acute angled pyramids. Colour of the ſurface brown or black, ſometimes irideſcent; internally nut brown. Powder red: Texture fibrous: Hardneſs 8 to 10: Brittle: Sp. gravity 3·789 to 3·951: Not magnetic. This variety has not yet" (1802) "been analyſed, but it ſeems to conſiſt of red oxide of iron, oxide of manganeſe and alumina.

"*Var.* 2. *Compact brown iron-ſtone* occurs in maſſes of very various and often fantaſtical ſhapes. Colour brown: Internal luſtre metallic: Texture compact: Hardneſs 6 to 9: Brittle: Sp. gravity 3·4771 to 3·551.

"*Var.* 3. *Brown ſcaly iron ore* is generally incumbent on other minerals. Colour brown: Luſtre metallic: Stains the fingers; marks ſtrongly: Feels unctuous: Texture foliated: Hardneſs 3 to 5: Brittle: So light as often to float on water.

"*Var.* 4. *Brown iron ochre* occurs both maſſive and diſſeminated. Colour from nut brown to orange: Luſtre 0: Strongly ſtains the fingers: Texture earthy: Hardneſs 3 to 4: When ſlightly heated, reddens.

"*Subſp.* 2. *Red iron ore.* Colour red: Streak blood red: Sp. gravity 3·423 to 5·005: Before the blow-pipe, blackens, but does not melt: Tinges borax yellowiſh olive green, When digeſted in ammonia, it becomes black, and often magnetic.

"*Var.* 1. *Red Hæmatites.* Found in maſſes, and all the variety of forms of ſtalactites. Colour between browniſh red and ſteel grey: Powder red: Internal luſtre metallic: Texture fibrous: Hardneſs 9 to 10: Brittle: Sp. gravity 4·74 to 5·005. When pure, it conſiſts of red oxide of iron, but it often contains manganeſe and alumina.

"*Var.* 2. *Compact red iron ore.* Found maſſive and ſtalactitic; ſometimes in cryſtals of various forms, but ſecondary; ſometimes in columns like baſalt. Colour between brown red and ſteel grey: Stains the fingers: Luſtre 1 to 0; often ſemimetallic: Texture compact: Hardneſs 7 to 9: Brittle: Sp. gravity 3·423 to 3·76: Sometimes inveſted with a roſy red ochre.

"*Var.* 3. *Red ochre.* Found ſometimes in powder, ſometimes indurated. Colour blood red: Stains the fingers: Luſtre 0: Texture earthy: Hardneſs 3 to 5: Brittle.

"*Var.* 4. *Red ſcaly iron ore* is generally found incumbent upon other iron ores. Colour between cherry red and ſteel grey: Stains the fingers: Luſtre ſilky, inclining to metallic: Texture foliated: Feels unctuous: Hardneſs 3 to 4: Brittle: Heavy.

"*Subſp.* 3. *Argillaceous iron ore. Oxide of iron combined or mixed with clay.* This ore is exceedingly common; and though it contains leſs iron than the ſpecies already deſcribed, it is, in this country at leaſt, preferred to them, becauſe the method of extracting pure iron from it is eaſier, or rather becauſe it is better underſtood. Colour dark brown: Streak red or yellowiſh brown: Sp. gravity 2·673 to 3·471: Before the blow-pipe blackens, and tinges borax olive green and blackiſh. It is compoſed of oxide of iron, alumina, lime, ſilica, in various proportions. It generally yields from 30 to 40 per cent. of iron.

"*Var.* 1. Common *argillaceous iron ore.* The minerals arranged under this variety differ conſiderably in their external characters. They are found in maſſes of various ſhapes, and often form large ſtrata. Colour various ſhades of grey, brown, yellow, and red: Streak reddiſh yellow or dark red: Luſtre 0: Hardneſs 3 to 8: Smell earthy when breathed upon.

"*Var.* 2. *Columnar* or *ſcapiform iron ore* is found in columns adhering to each other, but eaſily ſeparable. They are commonly incurvated, and their ſurface is rough: Colour browniſh red: Streak dark red: Slightly ſtains the fingers: Luſtre 0: Adheres ſtrongly to the tongue: Sound hollow: Feel dry: Texture earthy.

“ *Var.* 3. *Acinoſe iron ore* is found in maſſes, and is commonly lenticular. Colour generally browniſh red: Luſtre metallic, nearly: Texture granular: Hardneſs 5 to 9: Brittle.

“ *Var.* 4. *Nodular*, or *Kidney-form ore.* ÆTITES or EAGLESTONE.” (See theſe articles.) “ This variety is generally found under the form of a rounded knob, reſembling a kidney, though ſometimes quadrangular; and contains within it a kernel, which is ſometimes looſe, and ſometimes adheres to the outſide rind. Colour of the ſtone yellowiſh brown; of the kernel ochre yellow: Surface generally fouled with earth: Luſtre of the rind metallic; of the kernel 0: Hardneſs 4 to 7: Brittle.

“ *Var.* 5. *Piſiform* or *granular iron ore* occurs in rounded maſſes, from the ſize of a *pea* to that of a nut. Surface rough: Colour dark brown: Streak yellowiſh brown: Hardneſs 5 to 6: Brittle. The *oolitic ore* found at Creuſot, near Mount Cenis, belongs to this variety. It is compoſed of 50 lime, 30 iron, 20 alumina.

“ *Subſp.* 4. *Lowland iron ore.* This ſpecies is ſuppoſed to conſiſt of oxide of iron, mixed with clay and phoſphuret or phoſphat of iron. It is called *Lowland ore*, becauſe it is found only in low grounds, whereas the laſt ſpecies is more commonly in high grounds, and is therefore called *Highland ore.* This ore occurs in amorphous maſſes, and alſo in grains or powder. Its colour is brown: Streak yellowiſh brown: Luſtre 0, or common: Texture earthy: Hardneſs 3 to 5.

“ *Var.* 1. *Meadow Lowland ore.* Colour blackiſh or yellowiſh brown. Both colours often meet in the ſame ſpecimen. Found in lumps of various ſizes, often perforated. Fracture compact: Moderately heavy. Frequently yields from 32 to 38 per cent. of iron.

“ *Var.* 2. *Swampy iron ore* is generally found under water, in lumps, commonly perforated, or corroded, and mixed with ſand. Colour dark yellowiſh brown, or dark nut brown: Hardneſs 3 to 4: Brittle: Sp. gravity 2·944. It often contains 0·36 of iron.

“ *Var.* 3. *Moraſſy iron ore* is found either in a looſe form or in perforated lumps. Colour light yellowiſh brown: Stains the fingers: Hardneſs 3: Friable.

“ GENUS VI. SALTS OF IRON.

“ *Sp.* 1. *Sparry iron ore* is common in Germany, France, and Spain. It is found ſometimes in amorphous maſſes, ſometimes cryſtallized. Its colour is white, but it becomes tarniſhed by expoſure to the air, and then aſſumes various colours. Streak grey or white: External luſtre often metallic; internal common or glaſſy: Tranſparency 1 or 2; ſometimes 0: Texture foliated: Fragments rhomboidal: Hardneſs 5 to 7: Brittle: Sp. gravity 3·6 to 3·810: Not magnetic: Soluble in acids with little efferveſcence: Before the blow-pipe, decrepitates, becomes browniſh black and magnetic; but is ſcarcely fuſible: Tinges borax ſmutty yellow, with ſome efferveſce One ſpecimen, according to Bergman, contai 38 iron, 24 manganeſe, 38 carbonat of lime. A other contained 22 iron, 28 manganeſe, 50 c bonat of lime. Whether the iron be combi with the carbonic acid is ſtill a diſputed poi The cryſtals are rhomboidal parallelopipe which is preciſely the form of carbonat of lim

“ *Sp.* 2. *Arſeniat of iron* was firſt mentioned Klaproth, but miſtaken by him for arſeniat copper containing iron: it has been found alſ Muttrell mine in Cornwall. For the deſcript of it we are indebted to Bournon. This ore cryſtallized in cubes, which are ſometimes a li flattened, and in ſome caſes the angles are tr cated, and ſmall equilateral triangular faces ſ ſtituted for them. Sometimes the alternate an only are truncated. Colour dark green, wit browniſh tinge; ſometimes browniſh yell Tranſparency about 3: Hardneſs 7: Sp. grav 3: Sometimes in the ſtate of a powder of a diſh yellow. According to Chenevix, it is co poſed of 45·5 oxide of iron, 31 arſenic acid oxide of copper, 4 ſilica, 10·5 water.

Sp. 3. *Arſeniat of iron and copper* has been fo in Carrarach and Muttrell mines, in Cornw It was diſcovered likewiſe in Spain by Prouſt, in Siberia by Pallas. It was firſt mentioned Klaproth, who conſidered it as an arſeniat copper; but Mr Chenevix proved it to be a compoſed of the arſenic acid, combined with oxides of iron and copper. This ore cryſtalli in a four-ſided rhomboidal priſm, having 2 of edges very obtuſe and 2 very acute. The pri is terminated by a pretty acute four-ſided py mid. Very often the obtuſe edges, and ſo times all the edges of the priſm, are truncat Colour bluiſh white: Tranſparency of the c tals 4: Hardneſs 7: Sp. gravity 3·4. Accord to Chenevix, it is compoſed of 33·5 arſenical a 27·5 oxide of iron, 22·5 oxide of copper, 12 ter, 3 ſilica.

“ *Sp.* 4. *Sulphat of iron* is found ſometimes ſolved in water.” See CHEMISTRY, *Index*, MINERAL WATERS, § 15.

“ *Sp.* 5. *Tungſtat of iron.* See O. XVII. *Gen.*

Sp. 6. *Columbat of iron.* See ORD. XXII.

“ ORDER VII. ORES OF TIN.

“ TIN ores are by no means ſo common as ores of the metals already deſcribed. They found only in the *primitive mountains.* He Werner ſuppoſes them to be the moſt ancient o the metallic ores. They occur moſt frequent granite, ſometimes in porphyry, never in lime Almoſt the only tin mines known to Europe are thoſe of Cornwall, Devonſhire, Saxony, hemia, Sileſia, Hungary, Galicia, the iſlan Banca, the peninſula of Malacca in India, an Chili and Mexico in America.” See CHEM *Index*; CORNWALL, § I, 4.; METALLU *Part* II, *Sect.* VII; and *P.* III, *Sect.* VI; and T

“ GENUS I. SULPHURETS OF TIN.

“ *Sp.* 1. *Sulphuret of tin and copper.* *Tin rites.* Hitherto this ore has only been fou Cornwall. There is a vein of it in that cou in the pariſh of St Agnes, 9 feet wide, a yards beneath the ſurface. Its colour is yel grey, paſſing into ſteel grey; not unlike copper ore: luſtre metallic: hardneſs 5 to 6: very brittle: Sp. gravity 4·55: before the blow-pipe it melts eaſily, with a ſulphureous ſmell, into a black bead, and depoſits a bluiſh oxide on the charcoal. The compoſition of this ore was firſt diſcovered by Mr Raspe. According to Klaproth, it is compoſed of 34 tin, 36 copper, 25 ſulphur, 3 iron, 2 earth.

"Genus II. Oxides *of* Tin.

"*Sp.* 1. *Brown Oxide of Tin.* Tinstone. *Wood-tin.* This ore, which may be conſidered as almoſt the only ore of tin, occurs in maſſes in rounded pieces, and cryſtallized. The cryſtals are very irregular. Hauy ſuppoſes that their primitive form is a cube; but De Liſle makes it an octahedron, and Mr Day agrees with him. The octahedron is compoſed of 2 four-ſided pyramids applied baſe to baſe. This form, however, never occurs, but cryſtals of tinſtone are found in which the two pyramids are ſeparated by a priſm. (See De Liſle *Cryſt.* iii. 413. and *Phil. Mag.* iv. 152.) Colour commonly brown: ſtreak grey: hardneſs 9 to 10: ſp. gravity 6·9 to 7: brittle.

"*Var.* 1. Common *Tinſtone*. Colour dark brown: ſometimes yellowiſh grey, and ſometimes nearly white: ſtreak light grey: ſomewhat tranſparent, when cryſtallized: hardneſs 10: Sp. gravity 6·9 to 6·97: before the blow-pipe it decrepitates, and on charcoal is partly reduced; tinges borax white. According to Klaproth it is compoſed of 77·5 tin, 21·5 oxygen, 0·25 iron, 0·75 ſilica.

"*Var.* 2. Wood-tin has hitherto been found only in Cornwall; and always in fragments, generally rounded: colour brown, ſometimes inclining to yellow: ſtreak yellowiſh grey: opaque: texture fibrous: hardneſs 9: Specific gravity 7: before the blow-pipe becomes browniſh red; decrepitates when red hot, but is not reduced. Klaproth obtained from it 0·63 of tin; and in all probability it is an oxide of tin nearly pure.

Order VIII. Ores of Lead.

"Ores of Lead occur in great abundance in almoſt every part of the world. They are generally in veins; ſometimes in ſiliceous rocks, ſometimes in calcareous rocks." See Chemistry, *Index*; Lead, § I, 1.—14; Metallurgy, *Part* II. Sect. VI.; and *Part* III. *Sect.* VII.

"Genus I. Sulphurets of Lead.

"*Sp.* 1. Galena, or *pure Sulphuret of Lead*, is very common, both in maſſes and cryſtallized. The primitive form of its cryſtals is a cube. The moſt common varieties are the cube, ſometimes with its angles wanting, and the octahedron, compoſed of 2 four-ſided pyramids applied baſe to baſe. The ſummits of theſe pyramids are ſometimes [illegible]form, ſometimes their ſolid angles are wanting. Its colour is bluiſh grey like lead: ſtreak [illegible] grey and metallic: luſtre metallic: ſometimes ſtains the fingers: texture foliated: fragments cubical: hardneſs 5 to 7; ſometimes 9: brittle: Sp. gravity 6·884 to 7·786: effervеſces with nitric and muriatic acids: before the blow-pipe, decrepitates, and melts with a ſulphureous ſmell; part ſinks into the charcoal. It is compoſed of from 0·45 to 0·83 lead, and from 0·086 to 0·16 of ſulphur. It generally contains ſome ſilver, and ſometimes alſo antimony and zinc.

"*Var.* 1. *Common Galena* correſponds nearly with the above deſcription. Sp. gravity 7·51 to 7·786. Sometimes ſtains the fingers.

"*Var.* 2. *Compact Galena*, found only in amorphous maſſes. Texture compact, inclining to foliated: hardneſs 6 to 8: Sp. gravity 6·886 to 7·444: luſtre common: ſtreak lead grey, brighter, and metallic: often feels greaſy, and ſtains the fingers.

"*Sp.* 2. *Black Lead Ore* is found in Germany and Brittany, is ſuppoſed to be common galena decayed, and is ſometimes in ſtalactites of various forms, ſometimes cryſtallized in ſix-ſided priſms, generally truncated and confuſed. Colour black, often with ſome ſtreaks of red; ſtreak light bluiſh grey: internal luſtre metallic: hardneſs 5 to 6: brittle: ſp. gravity 5·744 to 5·77. Before the blow-pipe, decrepitates, melts eaſily, and is reduced. According to Laumont, this is a ſulphuret of lead, (or rather ſulphurated oxide), mixed with ſome phoſphat of lead.

"*Sp.* 3. *Blue Lead Ore* is found in Siberia, Germany and Hungary; is very rare; occurs in maſſes, and cryſtallized in ſix-ſided priſms. Colour between indigo blue and lead grey; ſometimes inclining to black: internal luſtre metallic: ſtreak brighter: texture compact: hardneſs 6: ſp. gravity 5·461. Before the blow-pipe, melts with a low blue flame and a ſulphureous ſmell, and is eaſily reduced.

"*Sp.* 4. Sulphuret of lead *with ſilver and antimony. Plumbiferous antimoniated ſilver ore.* Found in amorphous maſſes: Colour grey: hardneſs 5 to 6: brittle: ſp. gravity 5·2 to 8.

"*Var.* 1. *Light grey Silver Ore*. Colour light bluiſh grey: ſtreak light bluiſh grey, and brighter: luſtre metallic: texture compact: before the blow-pipe, partly evaporates, and leaves a ſilver bead on the charcoal ſurrounded by yellow duſt. According to Klaproth, it contains 48·06 lead, 20·4 ſilver, 7·88 antimony, 12·35 ſulphur, 2·25 iron, 7 alumina, 0·25 ſilica.

"*Var.* 2. *Dark grey Silver Ore*. Colour iron grey, verging on black: powder black, and ſtains the fingers: luſtre 0: texture earthy. According to Klaproth it contains 41 lead, 21·5 antimony, 29·25 ſilver, 22 ſulphur, 1·75 iron, 1 alumina, 0·75 ſilica.

"*Sp.* 5. Bismuthic Silver ore. *Sulphuret of lead, biſmuth and ſilver.* This ore, which occurs in the valley of Schapbach in Saxony, was firſt taken notice of by Selb, and afterwards deſcribed by Weidenmann and Emerling. Colour light bluiſh grey: luſtre metallic: fracture uneven; hardneſs 5: melts eaſily before the blow-pipe, emitting ſome ſmoke; and leaves a ſilver bead. A ſpecimen analyſed by Klaproth, contained 33 lead, 27 biſmuth, 15 ſilver, 16·3 ſulphur, 4·3 iron, 0·9 copper.

"Genus II. Oxides *of* Lead.

"*Sp.* 1. Lead Ochre. This ore, which is a mixture of the oxide of lead with various earths, is found maſſive, and of various degrees of hardneſs. Its colour is either yellow, grey, or red: Luſtre 0: Tranſparency 0 to 1: Hardneſs 6 to 8;

ſometimes in powder: Sp. gravity 4·165 to 5·545: Texture compact: Effervefces with nitric and muriatic acids: Eaſily reduced by the blow-pipe, leaving a black ſlag, unleſs the lead be mixed with too great a proportion of earth.

“ Genus III. Salts *of* Lead.

“ *Sp.* 1. Carbonat of Lead. *White Lead Spar.* This, ore which is very common, is ſometimes in maſſes, and ſometimes cryſtallized. But the cryſtallization is in general ſo confuſed, that the primitive form of the cryſtals has not yet been aſcertained. Colour white: external luſtre waxy or ſilky, from 3 to 1; internal 1 to 2: Generally ſomewhat tranſparent: Hardneſs 5 to 6: Brittle: Sp. gravity 7·2357: Effervefces with nitric and muriatic acids when heated: Soluble in fat oils: Blackened by ſulphuret of ammonia: Decrepitates when heated. Before the blow pipe, in a ſilver ſpoon, it becomes red by the yellow cone of the flame, while the blue cone renders it yellow. On charcoal it is immediately reduced. It contains from 0·60 to 0·85 of lead, and from 0·18 to 0·24 of carbonic acid. It is generally contaminated with carbonat of lime and oxide of iron

“ *Sp.* 2. Murio-Carbonat *of Lead.* For the firſt deſcription of this ore, which has hitherto been obſerved in Derbyſhire and the Hartz only, we are indebted to Count Bournon. The primitive form of its cryſtals is the cube, often lengthened, and the edges of the angles often truncated and replaced by ſmall planes. Colour uſually light ſtraw yellow; ſometimes a clear tranſparent white, with a luſtre far ſurpaſſing that of common carbonat of lead: Fracture glaſſy, reſembling that of precious ſtones: Scratched by carbonat of lead: Sp. gravity 6·0651. According to Chenevix, it is compoſed of 85 oxide of lead, 8 muriatic acid, 6 carbonic acid; or, which is the ſame thing, of 59 murial of lead, and 40 carbonat of lead.

“ *Sp.* 3. Phosphat *of Lead.* This ore, which is found in Siberia, Scotland, England, Germany, Carinthia, Brittany, &c. is ſometimes amorphous, ſometimes cryſtallized. The primitive form of its cryſtals, ſays De Liſle, is a dodecahedron, conſiſting of a ſix-ſided rectangular priſm, terminated by ſix-ſided pyramids, the ſides of which are iſoſceles triangles. Sometimes the pyramids are truncated and even wanting. The cryſtals are often acicular; Colour green, yellowiſh or browniſh, or greyiſh white: ſometimes a fine yellow: Streak greeniſh white; Powder yellowiſh: Luſtre waxy, 2 to 3: Somewhat tranſparent, except when its colour is greyiſh white; Hardneſs 5 to 6: Brittle: Sp. gravity 5·86 to 6·27. Inſoluble in water and ſulphuric acid, and nearly inſoluble in nitric acid; ſoluble in hot muriatic acid; with a ſlight effervefcence. Before the blow-pipe it eaſily melts on charcoal, and cryſtallizes on cooling: With ſoda the lead is in ſome meaſure reduced. Its compoſition was firſt diſcovered by Gahn. According to Fourcroy, a ſpecimen from Erlenbach in Alſace conſiſts of 96 phoſphat of lead, 2 phoſphat of iron, and 2 water; or it contains 79 oxide of lead, 1 oxide of iron, 18 phoſphoric acid, and 2 water.

“ *Sp.* 4. Arseniat of Lead has been hitherto found only in Andaluſia, in Spain, in quartz or felſpar, and in ſmall maſſes. Colour meado green, often paſſing into wax yellow: Luſt waxy, 2: Tranſparency 2. Before the blow-pi it melts, retains its colour, and does not cryſta lize on cooling. When heated to whiteneſs, t arſenic acid eſcapes, and the lead is reduced.

“ *Sp.* 5. Arsenite *of Lead.* This ore, whi is a compound of the white oxide of arſenic a the oxide of lead, has been lately found in mountain near St Prix, in the department of t Seine and Loire, by Champeaux. It is in t ſtate of ſilky filaments, of a fine yellow colo ſlightly flexible, and very eaſily broken: ſometim in greeniſh yellow concretions. Before the blo pipe, is reduced, exhaling an arſenical ſmell.

“ *Sp.* 6. Arsenio-phosphat *of Lead*, has be found in Auvergne in France, either in maſſes, cryſtallized in ſmall ſix-ſided priſms with curvi near faces. Colour yellowiſh green, or alterna layers of pale light and green: powder yellowi Cryſtals ſomewhat tranſparent, but when maſſi this ore is opaque: Hardneſs 5 to 7: Brittle: S gravity 6·8465: Soluble in hot muriatic acid, b not in nitric. When heated it decrepitates: B fore the blow-pipe, melts eaſily, effervefces, emi a white ſmoke, with an arſenical ſmell. Son particles of lead are reduced, a brown fluid r mains, which cryſtallizes on cooling. Accordi to Fourcroy, it is compoſed of 65 arſeniat lead, 27 phoſpat of lead, 5 phoſphat of iron, water.

“ *Sp.* 7. Molybdat *of Lead* is found in Cari thia, and was firſt mentioned in 1781 by Mr Ja quin. It occurs either in maſſes, or cryſtalliz in cubic, or rhomboidal, or octahedral plate Colour yellow: Streak white: Luſtre wax ſomewhat tranſparent: Texture foliated: Fra ture conchoidal: Hardneſs 5 to 6: Sp. gravi 5·486: When purified by nitric acid 5·706. S luble in fixed alkalies and in nitric acid: Comm nicates a blue colour to hot ſulphuric acid: S luble in muriatic acid, and decompoſed by it. B fore the blow-pipe decrepitates, melts into a y lowiſh grey maſs, and globules of lead are red ced. Klaproth firſt proved this ore molybdat lead. A pure ſpecimen analyſed by him, co tained 64·42 oxide of lead, 34·25 molybdic aci Mr Hatchett analyſed one containing 58·4 ox of lead, 38 molybdic acid, 2·1 oxide of iro 0·28 ſilica. Macquart found a ſpecimen to co tain 58·74 lead, 4·76 oxygen, 28 molybdic aci 4·5 carbonat of lime, and 4 ſilica. Its gangue carbonat of lime.” (See the definition of *gang* under Order XI.)

“ *Sp.* 8. Sulphat *of Lead* is found in Angl ſey, and in Andaluſia, generally cryſtalliſed. Th cryſtals are regular octahedrons, and very m nute. Colour white: Luſtre 4: Tranſparency Before the blow-pipe it is immediately red ced. Its compoſition was firſt aſcertained by D Withering.

“ *Sp.* 9. Chromat *of Lead.* See Ord. XX Gen. 1.

“ Order IX. Ores *of* Nickel.

“ Hitherto Nickel has been found in too ſm quantities to be applied to any uſe; of cour there are, properly ſpeaking, no mines of nick it occurs only, as far as is yet known" (1802) "in the ſecondary mountains, and commonly accompanies cobalt. It has been found in different parts of Germany, in Sweden, Siberia, Spain, France, and Britain." See Chemistry, *Index*; and Nickel.

"Genus I. Alloys *of* Nickel.

"Sp. 1. Kupfer Nickel. *Alloy of Nickel and Arſenic.* This, which is the moſt common ore of nickel, occurs either maſſive or diſembodied, but never cryſtallized. Colour often that of copper, ſometimes yellowiſh, white, or grey: recent fracture often ſilver white: luſtre metallic, 2 to 3: texture compact: hardneſs 8: ſp. gravity 6·6086 to 5·6481: ſoluble in nitric and muriatic acids: ſolution green. Before the blow-pipe, exhales an arſenical ſmoke, and melts into a bead; which darkens by expoſure to the air. This ore, when pure, is merely an alloy of nickel and arſenic, but it often contains cobalt and iron, and always a portion of pyrites.

"Genus II. Oxides *of* Nickel.

"Sp. 1. Nickel Ochre occurs either in the form of a powder or indurated; and is either amorphous or cryſtallized in acicular-form cryſtals. The powder is found in the ſurface of other nickel ores. Colour different ſhades of green: luſtre 1 to 0: texture earthy. Specific gravity conſiderable: ſlowly diſſolves in acids: ſolution green. Before the blow-pipe, does not melt, but gives a yellowiſh or reddiſh brown tinge to borax. This ore often contains *ſulphat of nickel*, which is ſoluble in water. The ſolution, when evaporated, gives oblong rhomboidal cryſtals, from which alkalies precipitate a greyiſh green oxide. This oxide is ſoluble by acids and by ammonia. The acid ſolution is green; the alkaline blue.

"Genus III. *Salts of Nickel.*

"Sp. 1. Arseniat *of Nickel*, lately diſcovered at Regendorff by Mr Gmelin, is found in ſhapeiſh maſſes, often mixed with plates of ſulphat of barytes. Colour pale grey, here and there mixed with pale green. Streak white. Luſtre 0. Texture compact. Hardneſs 7. Difficultly frangible. Specific gravity conſiderable. Adheres ſlightly to the tongue, and gives an earthy ſmell when breathed on. Soluble in hot and muriatic acids. Solution green. Contains ſome cobalt and alumina. The green efflorescence, which appears on Kupfer nickel, is arſeniat of nickel.

"Order X. Ores *of* Zinc.

"Ores of zinc are very abundant; they generally accompany lead ores, particularly galena. Calamine, or oxide of zinc, has never been diſcovered in the primitive mountains." See Calamine, § 2; Chemistry, *Index;* Metallurgy, *Part* II. *Sect.* XIII. *Part* III. *Sect.* VIII. and Zinc.

"Genus I. Sulphurets *of* Zinc.

"Sp. 1. Blende. *Sulphurated Oxide of Zinc.* This ore very commonly accompanies ſulphuret of lead. It occurs both in amorphous maſſes and cryſtallized. The primitive form of its cryſtals is a rhomboidal dodecahedron, conſiſting of a ſix-ſided priſm, terminated by three-ſided pyramids. All the faces of the cryſtals are equal rhombs. This dodecahedron may be mechanically divided into 4 equal rhomboidal parallelopipeds, and each of theſe into 6 tetrahedrons, whoſe faces are equal iſoſceles triangles. The figure of its integrant particles is the tetrahedron, ſimilar to theſe. The principal varieties of its cryſtals are the tetrahedron; the octahedron; the octahedron wanting its edges; a 24-ſided cryſtal, 12 of whoſe faces are trapezoids, and 12 elongated triangles; and a 28-ſided figure augmented by 4 equilateral triangles. Colour yellow, brown, or black: ſtreak reddiſh, browniſh, or grey: Luſtre commonly metallic; ſomewhat tranſparent: texture foliated: hardneſs 6 to 8. Specific gravity 3·9 to 4·1665. Before the blow-pipe, decrepitates, and gives out white *flowers of zinc*, but does not melt. Borax does not affect it. When breathed upon, loſes its luſtre, and recovers it very ſlowly.

"*Var.* 1. *Yellow Blende.* Colour ſulphur yellow, often paſſing into olive green or browniſh red: powder pale yellow; ſtreak yellowiſh or reddiſh grey, not metallic: luſtre metallic; tranſparency 2 to 4: often phoſphoreſces when ſcraped or rubbed. According to Bergman, it is compoſed of 64 zinc, 20 ſulphur, 5 iron, 4 fluor acid, 1 ſilica, 6 water.

"*Var.* 2. *Brown Blende.* Colour different ſhades of brown: ſurface often tarniſhed: powder browniſh grey: ſtreak reddiſh or yellowiſh grey, not metallic: luſtre commonly metallic: tranſparency 0 to 2. A ſpecimen, analyſed by Bergman, contained 44 zinc, 17 ſulphur, 24 ſilica, 5 iron, 5 alumina, 5 water.

"*Var.* 3. *Black Blende.* Colour black, or browniſh black; ſurface often tarniſhed blue; tips of the cryſtals often blood red: powder browniſh black: ſtreak reddiſh, browniſh, or grey: Luſtre common, or metallic: tranſparency 0 to 1; the red parts 2: hardneſs 8. A ſpecimen, analyſed by Bergman, contained 52 zinc, 26 ſulphur, 4 copper, 8 iron, 6 ſilica, 4 water.

Genus II. Oxides of Zinc.

"*Sp.* 1. *White Oxide of Zinc.* Calamine. This ore is either found looſe, or in maſſes, or cryſtallized. The primitive form of its cryſtals appears, from the mechanical diviſion of one of them by Mr Hauy, to be an octahedron compoſed of 2 four-ſided pyramids, whoſe ſides are equilateral triangles. But the cryſtals are minute, and their figure not very diſtinct. They are either four or ſix-ſided tables, with bevelled edges, ſix-ſided priſms, or three-ſided pyramids. Colour white, grey, or yellow: luſtre often 0, ſometimes 2 or 1: opaque: Cryſtals ſomewhat tranſparent: hardneſs 4 to 9: ſometimes in powder. Specific gravity 2·585 to 3·674. When heated becomes electric, without friction: not blackened by ſulphuret of ammonia: ſoluble in ſulphuric acid. Before the blow-pipe decrepitates, and does not melt. In one ſpecimen Bergman found 84 oxide of zinc, 3 oxide of iron, 12 ſilica, 1 alumina. In another, which gelatinized with acids, like zeolite, Klaproth found 66 oxide of zinc and 33 ſilica. In a 3d, analyſed by Pelletier, the contents were 52 ſilica, 36 oxide of zinc, and 12 water. Mr Kirwan divided this ſpecies into 3 varieties.

"*Var.* 1. *Friable Calamine.* In maſſes which eaſily crumble between the fingers: Luſtre 0: opaque: texture earthy. When its colour is white, it is pure oxide of zinc; when yellow it is mixed with oxide of iron. The white often becomes yellow when placed in a red heat, but reſumes its colour on cooling. Common in China, where it is called *Woban*, or *ore of Tutenago*.

“ *Var.* 2. *Compact Calamine.* Colour different ſhades of grey; ſometimes yellow or browniſh red: luſtre 0: opaque: texture compact.

“ *Var.* 3. *Striated Calamine.* This variety alone is found cryſtallized; but it is alſo often amorphous. Colour white, alſo various ſhades of grey, yellow, and red: ſomewhat tranſparent; texture ſtriated: luſtre 2 to 1.

“ GENUS III. SALTS OF ZINC.

“ *Sp.* 1. SULPHAT *of Zinc* is uſually in a ſtate of ſolution, and therefore belongs properly to MINERAL WATERS.” See that article, § 14, and CHEMISTRY, *Index*.

“ *Sp.* 2. *Carbonat of Zinc* poſſeſſes the external character of CALAMINE, but differs from that ore in containing carbonic acid. It is ſoluble with efferveſcence in nitric and carbonic acids.

“ ORDER XI. ORES OF ANTIMONY.

“ Ores of Antimony are found abundantly in Germany, Hungary, France, Spain, Britain, Sweden, Norway, &c.” (See ANTIMONY, § 1—24; and CHEMISTRY, *Index*.) “ They are found both in the ſecondary and primitive ſtratified mountains. They often accompany galena and hæmatites. They are found both in the ſecondary and primitive ſtratified mountains. Their *gangue* is often quartz and ſulphat of barytes.”—“ The word *gang*” (adds the Doctor in a note) “ is uſed by German mineralogiſts to denote *a metallic vein*. Now it is not often that theſe veins conſiſt entirely of *ore*; in general they contain ſtony matter beſides. For inſtance, in the copper mine at Airthry near Stirling, the copper ore is merely a narrow ſtripe in the middle of the vein, and the reſt of it is filled up with ſulphat of barytes. We uſe the word *gangue*, (as the French do,) to denote, not the *metallic* vein, but the *ſtony* matter which accompanies the ore in the vein. The gangue of the copper ore at Airthry is ſulphat of barytes.”

“ GENUS I. ALLOYS *of* ANTIMONY.

“ *Sp.* 1. *Native Antimony*, which was firſt diſcovered by Dr Swab, has been found in Sweden, France, and different parts of Scotland, both in maſſes and kidney-ſhaped lumps. Colour white, between that of tin and ſilver: luſtre metallic: texture foliated: hardneſs 6: Specific gravity above 6: deflagrates with nitre: before the blowpipe, melts and evaporates, depoſiting a white oxide of antimony. It conſiſts of antimony alloyed with 3 or 4 per cent. of arſenic.

“ GENUS II. SULPHURETS *of* ANTIMONY.

“ *Sp.* 1. *Grey ore of Antimony.* This ore, which is the moſt common, and almoſt the only ore of antimony, occurs both maſſive, diſſeminated, and cryſtallized. Its cryſtals are four-ſided priſms, ſomewhat flattened, whoſe ſides are nearly rectangles, terminated by ſhort four-ſided pyramids, whoſe ſides are trapeziums. Sometimes 2 of the edges are wanting, which renders the priſm ſix-ſided. Colour grey: luſtre metallic: ſtreak grey, metallic, and brighter: powder black, or greyiſh black: hardneſs 6 to 7. Specific gravity 4·1327 to 4·516: often ſtains the fingers. Before the blowpipe melts eaſily, burns with a blue flame, and depoſits a white oxide on the charcoal. Whe placed in an open veſſel, over a ſlow fire, th ſulphur evaporates, and leaves a grey oxide o antimony. This oxide, if fuſed with tartar, i reduced. This ore, when taken out of the mine almoſt always contains a large proportion o quartz or other ſtony matter. When pure i is compoſed of about 74 antimony, 26 ſulphur. Werner has divided this ſpecies into 3 varieties:

“ *Var.* 1. *Compact Sulphuret.* Colour bluiſh grey, ſurface often tarniſhed, and then it is blu or purpliſh: luſtre 1 to 2: texture compact: fracture fine-grained, uneven: powder black, dull and earthy: ſlightly ſtains the fingers.

“ *Var.* 2. *Foliated S.* Colour light ſteel grey Luſtre 3 to 4: Texture foliated: Powder as th laſt.

“ *Var.* 3. *Striated S.* Colour dark ſteel grey and light bluiſh grey; ſurface often tarniſhed t a dark blue or purpliſh: Luſtre 3 to 2: Textur ſtriated: Powder greyiſh black. This variety alone has been found cryſtallized.

“ *Sp.* 4. *Red Antimonial Ore. Hydroſulphuret o Antimony.* This ſpecies is generally found in cavities of ſulphurated antimonial ore; cryſtallized in delicate needles, often diverging from a common centre. Colour red. Luſtre 2, ſilky. Sp gravity 4·7. Before the blow-pipe melts eaſily and evaporates with a ſulphureous ſmell. Thi ore has not been analyſed. Mineralogiſts hav ſuppoſed it to be a natural KERMES. If ſo, w may conclude from Berthollet's experiments, tha it is a hydroſulphuret, compoſed of oxide o antimony, ſulphuret, and ſulphurated hydrogen gas.

“ *Sp.* 3. *Plumoſe Antimonial Ore. Sulphuret o Antimony and Arſenic.* This ſpecies, which is ſometimes found mixed with the cryſtals of ſulphurated antimony, is in the form of brittle, capillary or lanuginous cryſtals, often ſo ſmall that they cannot be diſtinctly ſeen without a microſcope Colour ſteel or bluiſh grey, often tarniſhed t brown or greyiſh black. Luſtre 1, ſemimetallic Before the blow-pipe emits a ſmoke, which depoſits a whitiſh and yellowiſh powder on the charcoal; it then melts into a black ſlag. It is ſuppoſed to conſiſt of ſulphur, antimony, arſenic, and ſome ſilver.

“ GENUS III. OXIDES *of* ANTIMONY.

“ There is a ſubſtance found incumbent on ſulphuret of antimony, of a yellow colour, and a earthy appearance, which has been ſuppoſed a oxide of antimony, and denominated *antimonia ochre*. But hitherto it has not been analyſed.

“ GENUS IV. SALTS *of* ANTIMONY.

“ *Sp.* 1. *Muriat of Antimony.* This ore, which has been found in Bohemia, is ſometimes in quadrangular tables; ſometimes in acicular cryſtals grouped like zeolites; and ſometimes in priſms Colour pale yellowiſh or greyiſh white. Luſtre to 1, nearly metallic. Tranſparency 2. Textur foliated. Melts eaſily by the flame of a candle and emits a white vapour. Before the blow-pipe decrepitates; when powdered and juſt ready t melt, it evaporates, and leaves a white powder around. Between two pieces of coal it is reducible to a metallic ſtate.

“ Order XII. Ores of Bismuth.

“ Biſmuth has been found only in the primitive mountains, and is by no means common. When unaccompanied by any other metal, it does not form veins, but kidney-form maſſes. It often accompanies cobalt. Its gangue is commonly quartz. Its ores are not very abundant. They have been found chiefly in Sweden, Norway, Tranſylvania, Germany, France, and England.” See **Bismuth**, I–III.; **Chemistry**, *Index*; and **Metallurgy**, *Part* II, *Sect.* XI.; and *Part* III, *Sect.* VIII.

“ Genus I. Alloys *of* Bismuth.

“ *Sp.* 1. *Native Biſmuth.* This mineral, which is found at Shneeberg, Johangeorgenſtadt, &c. in Germany, has commonly the form of ſmall plates lying above one another. Sometimes it is cryſtallized in four-ſided tables, or indiſtinct cubes. Colour white, with a ſhade of red; ſurface often tarniſhed red, yellow, or purple. Luſtre metallic, 3 to 2. Opaque. Texture foliated or ſtriated. Hardneſs 6. Sp. gravity 9·022 to 9·57. Exceedingly fuſible. Before the blow-pipe gives a ſilvery white bead, and at laſt evaporates in a yellowiſh white ſmoke, which is depoſited on the charcoal. It is generally accompanied by cobalt, and ſometimes contains arſenic.

“ Genus II. Sulphurets *of* Bismuth.

“ *Sp.* 1. *Common Sulphuret of Biſmuth.* This ore, which is found in Sweden, Saxony, and Bohemia, occurs ſometimes in amorphous maſſes, ſometimes in needle-form cryſtals. Colour commonly bluiſh grey, ſometimes white; ſurface often tarniſhed yellow, red, and purple. Powder black and ſhining. Luſtre metallic, 2 to 3. Streak obſcurely metallic. Texture foliated. Hardneſs 5. Brittle. Sp. gravity 6·131 to 6·4672. When held to the flame of a candle, it melts with a blue flame and ſulphureous ſmell. Before the blow-pipe emits a reddiſh yellow ſmoke, which adheres to the charcoal, becomes white when it cools, and reſumes its former colour, when the flame is directed upon it. This ore, according to Sage and La Peyrouſe, contains 60 biſmuth, 39 ſulphur. A ſpecimen, analyſed by Klaproth, contained 95 biſmuth and 5 ſulphur. It is commonly accompanied by quartz, aſbeſtus, or ſparry iron ore.

“ Genus III. Oxides *of* Bismuth.

“ *Sp.* 1. *Yellow Oxide of Biſmuth. Biſmuth Ochre.* This ore generally accompanies the two ſpecies already deſcribed. It is found in two ſtates; either of an earthy conſiſtence, or cryſtallized in cubes or quadrangular plates. Colour uſually greeniſh yellow, ſometimes grey. Soluble in nitrous acid without effervеſcence, and may in a great meaſure be precipitated by the affuſion of water.

“ Order XIII. Ores of Tellurium.

“ Hitherto **Tellurium** has only been found in Tranſylvania. It occurs in 3 different mines; thoſe of Fatzbay, Offenbanya, and Nagyag; which are conſidered as gold mines, becauſe they contain more or leſs of that metal. Its gangue is commonly quartz.” See **Tellurium**.

“ Genus I. Alloys *of* Tellurium.

“ *Sp.* 1. *White Gold Ore of Fatzbay. Alloy of Tellurium and Iron with ſome Gold.* This ſpecies is generally maſſive. Its colour is between tin white and lead grey. Luſtre conſiderable, metallic. Texture granular. According to Klaproth, it is compoſed of 72 iron, 25·5 tellurium, 2·5 gold.

“ *Sp.* 2. *Graphic Golden Ore of Offenbanya. Tellurium alloyed with gold and ſilver.* This ore is compoſed of flat priſmatic cryſtals; the arrangement of which has ſome reſemblance to Turkiſh *letters*. Hence the *name* of the ore. Colour tin white, with a tinge of yellow. Luſtre metallic, 3. Hardneſs 4 to 5. Brittle. Spec. gravity 5·723. Before the blow-pipe decrepitates, and melts like lead: burns with a lively brown flame and diſagreeable ſmell, and at laſt vaniſhes in a white ſmoke, leaving only a whitiſh earth. According to Klaproth, it is compoſed of 60 tellurium, 30 gold, 10 ſilver.

“ The *Yellow Gold Ore of Nagyag* would belong to this ſpecies, were it not that it contains lead. Its compoſition, according to Klaproth, is 45 tellurium, 27 gold, 19·5 lead, 8·5 ſilver, and an atom of ſulphur.

“ *Sp.* 3. *Grey Foliated Gold Ore of Nagyag.* This ore is found in plates of different degrees of thickneſs, adhering to one another, but eaſily ſeparable: theſe are ſometimes hexahedral, and often accumulated ſo as to leave cells between them. Colour deep lead grey, paſſing to iron black, ſpotted. Luſtre metallic, moderate. Texture foliated; leaves ſlightly flexible. Hardneſs 6. Sp. gravity 8·918. Stains the fingers. Soluble in acids with effervеſcence. According to Klaproth, it is compoſed of 50 lead, 33 tellurium, 8·5 gold, 7·5 ſulphur, 1 ſilver and copper.

“ Order XIV. Ores of Arsenic.

“ **Arsenic** is ſcattered in great abundance over the mineral kingdom, accompanying almoſt every other metal, and forming alſo ſometimes peculiar veins of its own. Of courſe it occurs in almoſt every ſpecies of mountains, and is accompanied by a variety of gangues.” See **Arsenic**, § 1—18; **Chemistry**, *Index*; **Metallurgy**, *Part* II, *Sect.* XIV; and *Part* III, *Sect.* VIII.

“ Genus I. Alloys *of* Arsenic.

“ *Sp.* 1. *Native Arſenic* is found in different parts of Germany; in maſſes of various ſhapes, kidney-form, botryoidal, &c. Colour that of ſteel. Its ſurface quickly becomes tarniſhed by expoſure to the air. Luſtre metallic, (when freſh,) 3 to 2: ſtreak bluiſh grey, metallic, and bright: powder dull and black: texture compact: hardneſs 7 to 8: brittle: Sp. gravity 5·67 to 5·7249. Gives an arſenical ſmell when ſtruck. Before the blow-pipe emits a white ſmoke, diffuſes a garlic ſmell, burns with a blue flame, gradually evaporates, depoſiting a white powder. It is always alloyed with ſome iron, and often contains ſilver, ſometimes gold.

“ Genus II. Sulphurets *of* Arsenic.

“ *Sp.* 1. **Realgar** is found in Sicily, about Mount Veſuvius, in Hungary, Tranſylvania, and various parts of Germany, either maſſive or cryſtallized. The primitive form of the cryſtals is, according to De Liſle, a four-ſided rhomboidal priſm, terminated by four-ſided pyramids, the ſides of which are rhombs. It commonly appears in 4, 6, 8, 10, or 12 ſided priſms, terminated by four-ſided ſummits. Colour red: ſtreak yellowiſh red: powder ſcarlet: luſtre 3 to 2: tranſparency 2 to 3; ſometimes 0: hardneſs 5 to 6: Sp. gravity 3·3384. It is an electric *per ſe*, and becomes negatively electric by friction. Nitric acid deprives it of its colour. Before the blow-pipe it melts eaſily, burns with a blue flame and garlic ſmell, and ſoon evaporates.

" *Sp.* 2. ORPIMENT. *Auripigmentum.* This ore, which is found in Hungary, Wallachia, Georgia, and Turkey in Aſia, is either maſſive or cryſtallized. The cryſtals are confuſed, and their figure cannot eaſily be determined; ſome of them appear octahedrons, and others minute four-ſided priſms. Colour yellow; ſtreak orange yellow: luſtre waxy, 2 to 3: tranſparency 0 to 2: texture foliated: hardneſs 4 to 8: Sp. gravity 3·048 to 3·521. Effervesces with hot nitric acid: burns with a bluiſh white flame: before the blow-pipe, melts, ſmokes, and evaporates, leaving only a little earth and ſome traces of iron.

" GENUS III. OXIDES *of* ARSENIC.

" *Sp.* 1. *White* OXIDE *of Arſenic. Native calx of Arſenic.* This ore is found in various parts of Germany, Hungary, &c. either in powder, or maſſive, or cryſtallized in priſmatic needles. Colour white or grey, often with a tint of red, yellow, green, or black: luſtre common, 1 to 2: tranſparency 1 to 0; when cryſtallized, 2: texture earthy: hardneſs 6: brittle: Sp. gravity 3·7. Soluble in hot diluted nitric acid without effervescence: ſoluble at 60° Fahrenheit at 80 times its weight of water. Before the blow-pipe ſublimes, but does not inflame: tinges borax yellow.

" GENUS IV. SALTS *of* ARSENIC.

" *Sp.* 1. Arſeniat of Lime. See *Claſs* I. *Order* II. *Gen.* I. *Sp.* 6.

" *Sp.* 2. Arſeniat of Copper. See *Claſs* IV. *Ord.* V. *Gen.* IV. *Sp.* 4.

" *Sp.* 3. Arſeniat of Iron. *Ib. Ord.* VI. *Gen.* VI. *Sp.* 2, 3.

" *Sp.* 4. Arſeniat of Lead. *Ib. Ord.* VIII. *Gen.* III. *Sp.* 4.

" *Sp.* 5. Arſeniat of Nickel. *Ib. Ord.* IX. *Gen.* III.

" *Sp.* 6. Arſeniat of Cobalt. *Ib. Ord.* XV. *Gen.* IV.

" ORDER XV. ORES OF COBALT.

" COBALT Ores are found almoſt excluſively in the ſtratified mountains, except one ſpecies, ſulphuret of cobalt, which affects the primitive mountains. They are not very abundant, and for that reaſon cobalt is more valuable than many of the other metals already treated of. They are commonly accompanied by nickel, biſmuth, or iron. They are moſt abundant in Germany, Sweden, Norway, and Hungary; they have been found alſo in Britain and France, but not in any great quantity." See AZURE, § 2; CHEMISTRY, *Ind.* COBALT, § 1, 2; METALLURGY, *Part* II, *Sect.* XII, and *Part* III, *Sect.* VIII: SMALT, and ZAFFRE.

" GENUS I. ALLOYS *of* COBALT.

" *Sp.* 1. *Cobalt alloyed with Arſenic. Dull grey Cobalt ore.* This ore, which occurs in different parts of Germany, is either amorphous or cryſtallized. The forms of its cryſtals are the cube; ſometimes its angles or edges or both wanting; and the octahedron. Its colour, when freſh broken, is white or bluiſh grey, ſometimes wi
ſhade of red; when expoſed to the air it ſoon
comes tarniſhed: Streak bluiſh grey and meta
luſtre ſcarcely metallic, 0 to 1: texture comp
hardneſs 10: difficultly frangible: Spec. gra
when amorphous, 5·309 to 5·571: when cry
lized 7·7207. When ſtruck it gives an arſe
ſmell: before the blow-pipe it emits an arſe
vapour, becomes magnetic, and melts eaſily,
leſs it contains a great quantity of iron: Ti
borax dark blue, and a ſmall metallic bead is
tained. A ſpecimen from Cornwall, examined
Klaproth, contained 20 cobalt, 24 iron, 33 a
nic, with ſome biſmuth and ſtony matter.

" GENUS II. SULPHURETS *of* COBALT.

" *Sp.* 1. *White Cobalt Ore.* SULPHURET *of*
balt, arſenic, and iron. The deſcriptions give
this ore are ſo various, that it is ſuppoſed diſt
ſubſtances have been confounded together. It
curs either in maſſes, or cryſtallized in cubes,
decahedrons, octahedrons, or icoſahedrons.
lour tin white, ſometimes tarniſhed reddiſh or
lowiſh: powder ſteel grey: luſtre partly meta
and from 2 to 4: partly 0 or 1: texture folia
hardneſs 8 to 9: Spec. gravity 6·284 to 6·4
Before the blow pipe gives an arſenical vap
and does not melt. The analyſes are very vari
A ſpecimen from Tunaberg, in Sweden, analy
by Taſſaert, conſiſted of 49 arſenic, 36·7 co
5·6 iron, 6·5 ſulphur. Klaproth found a ſpecime
of the ſame ore to contain 55·5 arſenic, 44 cobal
and 0·5 ſulphur.

" GENUS III. OXIDES *of* COBALT.

" *Sp.* 1. *Black Cobalt ore,* or *ochre,* occurs i
different parts of Germany, either in the form
a powder or indurated. Colour black, often wi
a ſhade of blue, grey, brown, or green: luſtre
to 1: ſtreak brighter: hardneſs (of the indurate
4 to 8. Sp. gravity 3 to 4: ſoluble in muriat
acid: tinges borax blue.

" *Sp.* 2. *Brown Cobalt ore.* Colour greyiſh,
dark leather brown: Streak brighter, unctuou
communicates a pale blue tinge in fuſion.

" *Sp.* 3. *Yellow Cobalt ore.* Colour yellow; du
and earthy: hardneſs 4 to 5: texture earthy
ſtreak brighter, unctuous: gives a weak blue ting

" GENUS IV. SALTS OF COBALT.

" *Sp.* 1. *Arſeniat of Cobalt. Red Cobalt o*
This ſpecies has neither been accurately deſcrib
nor analyſed. It is found in maſſes of vario
ſhapes, and cryſtallized in quadrangular tables,
acicular priſms. Colour red: luſtre from 2 to
ſometimes 0: tranſparency 0 to 2: hardneſs 5
7: brittle: before the blow-pipe becomes blac
iſh grey: diffuſes a weak arſenical ſmell: ting
borax blue.

" *Sp.* 2. *Sulphat of Cobalt* has been found
Neuſohl in Hungary, in the form of tranſpare
ſtalactites, of a red colour. Klaproth found th
by analyſis.

" ORDER XVI ORES OF MANGANESE.

" Ores of manganeſe occur often in ſtrata, bo
in the primitive and ſecondary mountains: ſcar
ly ever, however, in thoſe which are conſider
as the moſt ancient. They are very common, h
ving been found abundantly in Germany, Franc
Spain, Britain, Sweden, Norway, Siber ." S
CHEMISTRY, *Index;* and MANGANESE, § 1—

" G

"Genus I. Oxides *of* Manganese.

"Hitherto mangaueſe has only been found in the ſtate of *oxide*.

"*Sp.* 1. Oxide *of Manganeſe combined with Barytes* exiſts in great abundance in Romaneche near La Saone in France. It is found maſſive, forming a ſtratum in ſome places more than 12 feet thick. Colour greyiſh black or browniſh black, of great intenſity: luſtre, external, 0; internal, metallic, 1: ſoon tarniſhes by expoſure to the air, and then becomes intenſely black. Texture granular: fracture uneven, ſometimes conchoidal; often porous: hardneſs 11: difficultly frangible: Sp. gravity 3·950 to 4·10: abſorbs water: when taken out of it, after a minute's immerſion, it has a ſtrong argillaceous ſmell: conducts electricity nearly as well as if it were in a metallic ſtate: infuſible by the blow-pipe; tinges ſoda red; the colour diſappears before the blue cone of a flame, and is reproduced by the action of the yellow flame. From Vauquelin's analyſis, it is compoſed of 50 white oxide of manganeſe, 33·7 oxygen, 14·7 barytes, 1·2 ſilica, 0·4 charcoal.

"*Sp.* 2. *Grey ore of Manganeſe* occurs both maſſive and diſſeminated; alſo ſometimes cryſtallized in ſlender four-ſided priſms. Colour duſky ſteel grey; ſometimes whitiſh or reddiſh grey: ſtreak and powder black: external luſtre 3 to 2: internal metallic, 2 to 1: texture ſtriated or foliated: hardneſs 4 to 5: Brittle: Sp. gravity 4·073 to [illegible]. Before the blow-pipe darkens: tinges borax reddiſh brown. A ſpecimen from the mountains of Voſges, analyſed by Vauquelin, was compoſed of 82 oxide of manganeſe, 7 carbonat of lime, 6 ſilica, 5 water. Sometimes it contains a little barytes and iron.

"*Sp.* 3. *Black* or *Brown ore of Manganeſe* is found ſometimes in the ſtate of powder, ſometimes indurated in amorphous maſſes of various figures. Colour either black with a ſhade of blue or brown, or reddiſh brown: ſtreak of the harder ſorts metallic, of the others black: luſtre 0 to 1; internal, (when indurated), metallic: texture compact: hardneſs 5 to 7: Sp. gravity 3·7076 to 3·9039; that of the powder ſometimes only 2. Before the blow-pipe, the ſame as the laſt. A ſpecimen analyſed by Weſtrum, contained 45 manganeſe, 14 oxide of iron, 11 ſilica, 7·25 alumina, 2 lime, 1·5 oxide of copper, 18 air and water.

"Genus II. Salts *of* Manganese.

"*Sp.* 1. Carbonat *of* Manganese. *White ore of Manganeſe.* This ſpecies occurs in Sweden, Norway, and Tranſylvania; in the form of looſe ſcales, or maſſive, or cryſtallized in needles. Colour white, or reddiſh white: texture radiated or ſcaly: luſtre of the ſcaly, 2: tranſparency 1 to 2: hardneſs of the maſſive, 6 to 9: Sp. gravity 2·794. Effervesces with mineral acids: heated to redneſs, blackens: tinges borax violet.

"*Sp.* 2. *Red ore of Manganeſe.* Carbonat *of Manganeſe and Iron.* This ſpecies has been found in Piedmont and the Pyrenees; ſometimes in powder, ſometimes maſſive, ſometimes cryſtallized in rhomboidal priſms or needles. Colour pale roſy red, mixed with white: powder nearly white; luſtre 0: tranſparency 1: hardneſs 8: Sp. gravity 3·233. Effervesces with nitric and muriatic acids: when heated to redneſs becomes reddiſh brown: tinges borax red. A ſpecimen analyſed by Ruprecht, contained 55 ſilica, 35 oxide of manganeſe, 7 oxide of iron, 1·5 alumina.

"Order XVII. Ores of Tungsten.

"Ores of Tungſten are by no means common. They have hitherto been found only in the primitive mountains. Their gangue is commonly quartz. They very often accompany tin ores." See Chemistry, *Index*; and Tungsten.

"Genus I. Oxides *of* Tungsten.

"*Sp.* 1. Wolfram. *Oxides of Tungſten, iron, and manganeſe.* Tungstat *of iron and manganeſe.* This ſpecies is found in different parts of Germany, in Sweden, Britain, France, and Spain; almoſt conſtantly accompanied by ores of tin. It occurs both maſſive and cryſtallized. The primitive form of its cryſtals, according to Mr Hauy, is a rectangular parallelopiped, whoſe length is 8·66, breadth 5, and thickneſs 4·33. It is not common, however, to find cryſtals of this perfect form; in many caſes, the angles, and ſometimes the edges, of the cryſtal, are wanting; owing to the ſuperpoſition of plates, whoſe edges or angles decreaſe. Colour brown, or browniſh black: ſtreak reddiſh brown: powder ſtains paper the ſame colour: luſtre external 2; internal 2 to 3; nearly metallic: texture foliated: eaſily ſeparated into plates by percuſſion: hardneſs 6 to 8: Sp. gravity 7·006 to 7·333: moderately electric by communication: not magnetic: infuſible by the blow-pipe: forms with borax a greeniſh globule, and with microcoſmic ſalt a tranſparent globule of a deep red. The ſpecimen, examined by Meſſrs D'Elhuyarts, was compoſed of 65 oxide of tungſten, 22 oxide of manganeſe, 13 oxide of iron. Another from Puy les Mines in France, analyſed by Vauquelin and Hecht, contained 67 oxide of tungſten, 18 black oxide of iron, 6·25 black oxide of manganeſe, 1·5 ſilica, 7·25 oxide of iron and manganeſe.

"*Sp.* 2. Tungstat *of Lime.* Tungsten. This ore, which is now exceedingly ſcarce, has hitherto been found only in Sweden and Germany. It is either maſſive or cryſtallized; and, according to Hauy, the primitive form of its cryſtals is the octahedron. Colour yellowiſh white or grey: Luſtre 3 to 2: tranſparency 2 to 3: texture foliated: hardneſs 6 to 9: Sp. gravity 5·8 to 6·0665: becomes yellow when digeſted with nitric or muriatic acid. Infuſible by the blow-pipe: with borax forms a colourleſs glaſs, unleſs the borax exceed, when it is brown. With microcoſmic acid it forms a blue glaſs, which loſes its colour in the yellow flame, but recovers it in the blue flame. It is compoſed of about 70 oxide of tungſten, and 30 lime, with a little ſilica and iron.

"*Sp.* 3. *Brown* Tungstat *of Lime.* This ore is found in Cornwall, either maſſive or compoſed of ſmall cryſtalline grains. Colour grey, variegated with yellow and brown. Luſtre waxy. Hardneſs 6 to 7. Sp. gravity 5·57. Its powder becomes yellow when digeſted in aqua regia. According to Klaproth, it is compoſed of 88 oxide of tungſten, and 11·5 lime.

"Order XVIII. Ores of Molybdenum.

"Ores of Molybdenum are very ſcarce, having only been found in Sweden, Germany, Carniola, among the Alps, near Inverneſs and in the iſland of Lewis in Scotland. Like tin and tungſten, it affects the primitive mountains." See CHEMISTRY, *Index;* and MOLYBDENA.

" GENUS I. SULPHURET *of* MOLYBDENUM.

" *Sp.* 1. *Common Sulphuret.* MOLYBDENA. This ore, which is the only ſpecies of molybdenum ore at preſent known, is found commonly maſſive; ſometimes, however, it is cryſtallized in hexahedral tables. Colour light lead grey; ſometimes with a ſhade of red. Streak bluiſh grey, metallic. Powder bluiſh. Luſtre metallic, 3 to 2. Texture foliated. Lemellæ ſlightly flexible. Hardneſs 4. Specific gravity 4·569 to 4·7385. Feels greaſy; ſtains the fingers. Marks bluiſh black, A piece of reſin rubbed with this mineral becomes poſitively electric. Inſoluble in ſulphuric and muriatic acids; but in a boiling heat colours them green. Effervesces with warm nitric acid, leaving a grey oxide undiſſolved. Before the blow-pipe, on a ſilver ſpoon, emits a white ſmoke, which condenſes into a white powder, which becomes blue in the internal, and loſes its colour in the external flame. Scarcely affected by borax or microcoſmic ſalt. Effervesces with ſoda, and gives it a reddiſh pearl colour. Compoſed of about 60 molybdenum and 40 ſulphur.

" ORDER XIX. ORES *of* URANIUM.

" URANIUM has been hitherto found only in Germany and France." The mines where it has occurred are in the primitive mountains." See URANIUM.

" GENUS I. OXIDES *of* URANIUM.

" *Sp.* 1. PECHBLENDE. This ore, which has been found in Johanngeorgenſtadt in Saxony, and Joachinſthal in Bohemia, is either maſſive or ſtratified with other minerals. Colour black, or browniſh black; ſometimes with a ſhade of grey or blue. Streak darker. Powder opaque and black, luſtre ſemimetallic, 3 to 1. Fracture conchoidal. Hardneſs 7 to 8. Very brittle. Sp. gravity 6·3785 to 7·5, and even higher. Imperfectly ſoluble in ſulphuric and muriatic acids; perfectly in nitric acid and aqua regia. Solution wine yellow. Infuſible with alkalis in a crucible; and by the blow-pipe *per ſe.* With borax and ſoda forms a grey opaque ſlag; with microcoſmic ſalt a green glaſs. A ſpecimen from Joachimſthal, analyſed by Klaproth, contained 86·5 uranium, 6 ſulphuret of lead, 5 ſilica, 2·5 oxide of iron.

" *Sp.* 2. *Yellow* OXIDE *of* URANIUM. URANITIC OCHRE. This ore is generally found on the ſurface of the laſt ſpecies at Johanngeorgenſtadt, and is either maſſive or in powder. Colour yellow, red, or brown. Streak of the yellow ſorts yellow; of the red, orange yellow, luſtre 0. Slightly ſtains the fingers. Feels meagre. Texture earthy. Hardneſs 3 to 4. Sp. gravity 3·2438. Infuſible by the blow-pipe; but in a ſtrong heat becomes browniſh grey. Compoſed of oxide of uranium, and oxide of iron.

" *Sp.* 3. *Cryſtallized* OXIDE *of uranium.* *Green* MICA *Chalcolite.* This ſubſtance is alſo found at Johanngeorgenſtadt, and near Eibenſtock, and Rhembreidenbach. It is ſometimes amorphous, but more commonly cryſtallized. Its cryſtals are ſquare plates, octahedrons, and ſix-ſided priſms. Champeaux found a mine of it in Burgundy. Colour green; ſometimes nearly white; though, ſometimes, yellowiſh. Streak greeniſh. white. tre 3 to 2; internal 2; ſometimes, pearly: ſo times nearly metallic. Tranſparency 2 to Texture foliated. Hardneſs 5 to 6. Brittle ble in nitric acid without effervescence. In by alkalies. Compoſed of oxide of uranium, ſome oxide of copper. When its colour is ye it contains no copper.

ORDER XX. ORES *of* TITANIUM.

" Hitherto Titanium has been found only in primitive mountains, the Crapacks, the Alps, the Pyrenees. It has been found alſo in Brit and Cornwall." See TITANIUM.

" GENUS I. OXIDES *of* TITANIUM.

" *Sp.* 1. *Red* OXIDE *of Titanium.* *Red* SHO SAGENITE. This ore has been found in Hung the Pyrenees, the Alps, and Brittany. It is nerally cryſtallized. The primitive form o cryſtals, ſays Hauy, is a rectangular priſm, w baſe is a ſquare; and the form of its molecul a triangular priſm, whoſe baſe is a right-an iſoſceles triangle, and the height is to any o ſides of the baſe; about the right angle as √ to √5, or nearly as 3:2. Sometimes the cry are ſix-ſided and ſometimes four-ſided priſms; often they are implicated together. Colour r browniſh red. Powder brick or orange Luſtre 3. Tranſparency commonly 0. So times 1. Texture foliated. Hardneſs 9. F Sp. gravity 4·18 to 4·2469. Not affected by mineral acids. When fuſed with carbonat of aſs, and diluted with water, a white powder cipitates, heavier than the titanium emplo Before the blow-pipe it does not melt, but comes opaque and brown. With microcoſmic it forms a globule of glaſs, which appears b but its fragments are violet. With borax it f a deep yellow glaſs, with a tint of brown. W ſoda it divides and mixes, but does not for tranſparent glaſs. When pure, it is compoſed tirely of oxide of Titanium.

" *Sp.* 2. *Menachanite.* OXIDE *of* TITAN *combined with iron.* This ſubſtance has found abundantly in the valley of Menach Cornwall, and hence was called *Menachanite* Mr GREGOR, the diſcoverer of it. It is in grains like gun-powder, of no determinate f and mixed with a fine grey ſand. Colour Eaſily pulveriſed. Powder attracted by the m net. Sp. gravity 4·427. Does not detonate w nitre. With 2 parts of fixed alkali it melts an olive coloured maſs, from which nitric precipitates a white powder. The mineral a only extract from it a little iron. Diluted ſul ric acid, mixed with the powder, in ſuch portion, that the maſs is not too liquid, and evaporated to dryneſs, produces a blue colo maſs. Before the blow-pipe does not decrep nor melt. It tinges microcoſmic ſalt green; the colour becomes brown on cooling. Y crocoſmic ſalt does not diſſolve it. Soluble in rax, and alters its colour in the ſame ma According to Mr Gregor's analyſis, it is comp of 46 oxide of iron, 45 oxide of titanium, ſome ſilica and manganeſe. According to proth, it is compoſed of 51 oxide of iron, 45 ide of titanium, 3·5 ſilica, 0·25 oxide of man

" A *variety* from the Uralian mountains [illegible]owitz, contained 53 oxide of titanium, [illegible] of iron. A mineral nearly of the ſame [illegible] has been found in Bavaria. Its ſpecific gravity, however, is only 3·7. According to Vauquelin and Hecht, it is compoſed of 49 oxide of [illegible], 35 iron, 2 manganeſe, and 14 oxygen [illegible] with the iron and manganeſe. A ſpecimen of the ſame ore from Botany Bay has been analyſed by Mr Chenevix.

Sp. 2. *Calcareo-ſiliceous ore of titanium. Oxide [illegible] combined with oxide of lime and ſilica.* TITANITE. This ore has hitherto been found [illegible] near Paſſau. It was diſcovered by Profeſſor [illegible]. It is ſometimes maſſive, but oftener cryſtallized in four-ſided priſms not longer than [illegible] of an inch. Colour reddiſh, yellowiſh, [illegible] brown; ſometimes whitiſh grey: powder whitiſh grey: luſtre waxy or nearly metallic, [illegible]: tranſparency 0 to 2: texture foliated: [illegible] 9 or more: brittle. Specific gravity [illegible]. Muriatic acid, by repeated digeſtion, diſſolves one 3d of it. Ammonia precipitates from the ſolution a clammy yellowiſh ſubſtance. Infuſible by the blow-pipe, and alſo in a clay crucible; but in charcoal is converted into a black [illegible] porous ſlag. According to Klaproth, it is compoſed of 33 oxide of titanium, 35 ſilica, [illegible].

ORDER XXI. ORES OF CHROMUM.

[illegible] CHROMUM," (or CHROME) "has [illegible] only in two places, near Ekaterinburg in Siberia, and in the department of the Var in France. In the firſt of theſe places, and [illegible] alſo in the 2d, its gangue is quartz" [illegible] Mr MURRAY's deſcription of this metal, and [illegible] under METALLURGY, Part I. Sect. I.

"GENUS I. SALTS of CHROMUM."

In the general liſt of *Metallic Ores*, above [illegible], this genus is ſtyled *Oxides*, which ſeems [illegible] a miſtake, probably of the printer; for the following ſpecies of *Chromats* are evidently *ſalts*, and not *oxides*; and are here accordingly entitled SALTS.

Sp. 1. CHROMAT *of* LEAD. *Red Lead ore of* [illegible]. This ſingular mineral, which has now [illegible] ſcarce, is found in the gold mines of Beresof near Ekaterinbourg, cryſtallized in four-ſided priſms, ſometimes terminated by four-ſided pyramids, ſometimes not. Colour red with a ſhade of yellow; ſtreak and powder a beautiful orange yellow: luſtre 2 to 3; tranſparency 2 to 3: ſtructure [illegible]: texture compact: fracture uneven: hardneſs 3 to 4. Specific gravity 6·0269 to 5·75. [illegible] not effervesce with acids. Before the blow-pipe decrepitates; ſome lead is reduced, and the [illegible] is converted to a black ſlag, which tinges [illegible] green. According to Vauquelin, it is compoſed of 65·12 oxide of lead, and 34·88 chromic acid.

Sp. 2. CHROMAT *of* IRON *and* ALUMINA. This mineral, which has been found only near [illegible], in the department of Var in France, is in irregular maſſes. Colour brown, like that of brown blende: powder aſh grey: luſtre ſlightly metallic: hardneſs ſufficient to ſcratch glaſs. Specific gravity 4·0326. Does not melt before the blow-pipe *per ſe*, but melts with borax, and forms a fine green bead. Inſoluble in nitric acid. Melted with potaſs, and diſſolved in water, the ſolution aſſumes a beautiful orange yellow colour. It is compoſed of 43 chromic acid, 34·7 oxide of iron, 20·3 alumina, and 2 ſilica."

Such is the very accurate account given by the ingenious Dr THOMSON of the 21 orders of metallic ores: to which we have to add a 22d order from his account of the laſt diſcovered metal in his Appendix.

ORDER XXII. ORES OF COLUMBIUM.

Mr HATCHETT has lately diſcovered a *new metal* in an iron ore from America, and has given it the name of COLUMBIUM. The analyſis itſelf is not yet publiſhed, but Mr NICHOLSON has inſerted an abſtract of the experiments in the 1ſt N°. of his 8vo *Journal*, p. 32, which is quoted by Dr THOMSON as follows:

GENUS I. SALTS *of* COLUMBIUM.

Sp. 1. COLUMBAT *of* IRON. This "mineral was ſent to Sir HANS SLOANE by Mr WINTHROP of Maſſachuſetts. It is heavy, of a dark grey colour, and has ſome reſemblance to chromat of lead. The mineral acids have but little effect on it. The ſulphuric indeed diſſolves a little iron. When infuſed with carbonat of potaſs, and then waſhed in pure water, part of it is diſſolved: muriatic acid diſſolves another portion. By treating it alternately with carbonat of potaſs and muriatic acid, it is completely diſſolved. The acid holds iron in ſolution; the alkali is combined with a peculiar metallic acid, to which the name of *Columbic* has been given. The mineral therefore is a *Columbat of iron*. It is compoſed of about 75 1000th parts columbic acid, and 25 oxide of iron. Nitric acid precipitates columbic acid from its combination with potaſs in the form of white flakes.

"This acid precipitate ſeems to be inſoluble in water, but it reddens litmus paper. It is inſoluble in nitric acid, and remains perfectly white; but both muriatic and ſulphuric acids diſſolve it. When theſe ſolutions are ſaturated with potaſs, columbic acid precipitates in white flakes. Triple pruſſiate of potaſs occaſions an olive precipitate; the tincture of nutgalls a deep orange precipitate. When the ſolution of columbic acid in ſulphuric acid is diluted with water, a white precipitate appears, which, when dried, becomes firſt blue and then grey. Zinc precipitates a white powder from the ſame ſolution.

"COLUMBIC ACID combines with potaſs and ſoda, both by the dry and humid way. It expels carbonic acid, and forms with potaſs a glittering ſcaly ſalt, which has much the appearance of boracic acid. It does not combine with ammonia. Acids ſeparate columbic acid from the fixed alkalies; and when added to exceſs, do not rediſſolve it unleſs heated, and even when heated nitric acid has no effect. The ſame thing takes place, when an exceſs of alkali is added to the acid ſolutions. Hydroſulphuret of ammonia, added to the alkaline ſolutions, forms a chocolate-coloured precipitate. Pruſſiat of Potaſs and tincture of galls produce no effect till an acid is added; and the olive green and orange precipitates appear.

"The acid and alkaline ſolutions are colourleſs. Columbic acid does not combine with ſulphur in the dry way. It forms a purpliſh blue glaſs with phoſphat of ammonia. It appears to be of extremely difficult reduction." *Syſtem of Chem.* IV. 536—538.

PART III.

"METHOD of ANALYSING MINERALS."

Chap. I. Preliminary Observations *and* Directions.

"The progreſs" (ſays Dr Thomson) "which the art of analyſing minerals has made within theſe laſt 20 years, is truly aſtoniſhing. To ſeparate 5 or 6 ſubſtances intimately combined, to exhibit each of them ſeparately, to aſcertain the preciſe quantity of each, and even to detect the preſence and weight of ſubſtances, which do not approach one 500th part of the compound, would, at no very remote period, have been conſidered as a hopeleſs, if not an impoſſible, taſk; yet this can now be done with tolerable accuracy.

"The firſt perſon who undertook the analyſis of minerals was Margraff of Berlin. His attempts were indeed rude, but their importance was ſoon perceived by Bergman and Scheele, whoſe induſtry and addreſs brought the art to a conſiderable degree of perfection. But their methods, though they had very conſiderable merit, were often tedious and uncertain, and could not in all caſes be applied with confidence. Theſe defects were perceived by Mr Klaproth of Berlin, who applied himſelf to the analyſis of minerals with a perſevering induſtry, which nothing could fatigue, and an ingenuity and accuracy, which nothing could perplex. He corrected what was wrong, and ſupplied what was wanting; invented new proceſſes, diſcovered new inſtruments; and to his labours, more than to thoſe of any other chemiſt, the degree of perfection to which the analyſis of minerals has attained, is to be aſcribed. Many improvments, however, were introduced by other chemiſts, eſpecially by M. Vauquelin, whoſe analyſes, in point of accuracy and ingenuity, rival thoſe of Klaproth himſelf."

"In the following ſection (or chapters)," Dr Thomson "deſcribes the method of analyſing minerals at preſent practiſed by chemiſts," after "premiſing the following obſervations:

"Before a mineral is ſubmitted to analyſis, it ought to be reduced to an impalpable powder. This is by no means an eaſy taſk, when the ſtone is extremely hard. It ought to be raiſed to a bright red or white heat in a crucible, and then inſtantly thrown into cold water. This ſudden tranſition makes it crack and break into pieces. If theſe pieces are not ſmall enough, the operation muſt be repeated on each, till they are reduced to the proper ſize. Theſe fragments are then to be beaten to ſmall pieces in a poliſhed ſteel mortar; the cavity of which ſhould be cylindrical, and the ſteel peſtle ſhould fit it exactly, to prevent any of the ſtone from eſcaping during the act of pounding. As ſoon as the ſtone is reduced to pretty ſmall pieces, it ought to be put into a mortar of rock cryſtal, or flint, and reduced to a coarſe powder. This mortar ſhould be about 4 inches in diameter, and rather more than an inch in depth. The peſtle ſhould be formed of the ſame ſtone with the mortar. Klaprot mortar is of flint.

"When the ſtone has been reduced to a co powder, a certain quantity, weighing exactly, grains for inſtance, ought to be reduced to as a powder as poſſible. This is beſt done by pou ing ſmall quantities of it at once, not excee 10 grains. The powder is as fine as poſſi when it feels ſoft, adheres together, and, a were, forms a cake under the paſte. It ou then to be weighed exactly. It will almoſt alw be found heavier after being pounded than it before; owing to a certain quantity of the ſubſta of the mortar being rubbed off during the gri ing, and mixed with it. This addditional we muſt be carefully noted; and, after the analy a portion correſponding to it muſt be tracted.

"It is neceſſary to have a crucible of pure ver, or, what is far preferable, of platinum, pable of holding rather more than 7 cubic inc of water, with a cover of the ſame metal; a ſpatula of the ſame about 4 inches long. The di in which the ſolutions, evaporations, &c. are formed, ought to be of glaſs or porcelain. Th of porcelain are cheaper, becauſe they are no apt to break. Thoſe which Vauquelin uſes ar porcelain; they are ſections of ſpheres, and glazed both within and without, except that of the bottom, which is immediately expoſe the fire."

Chap. II. "Analysis of Earths an Stones."

"The only ſubſtances, which enter into compoſition of the ſimple ſtones, as far as anal has diſcovered, are the 6 earths, ſilica, alumi zirconia, glucina, lime, and magneſia; and oxides of iron, manganeſe, nickel, chromum, copper. Seldom more than 4 or 5 of theſe ſtances are found combined together in the ſ ſtone.

"Let 100 or 200 grains of the ſtone to be a lyſed, previouſly reduced to a fine powder, mixed with 3 times its weight of pure potaſs a little water, and expoſed in the ſilver or platin crucible to a ſtrong heat. The heat ſhould at be applied ſlowly, and the matter ſhould be c ſtantly ſtirred, to prevent the potaſs from ſwel and throwing any part out of the crucible. Wh the whole water is evaporated, the mixture ſho be kept for half an hour or 3 quarters in a ſtr red heat.

"If the matter in the crucible melts comple ly, and appears as liquid as water, we may certain that the ſtone conſiſts chiefly of ſilica; remains opaque, and of the conſiſtence of pa the other earths are moſt abundant; if it rema in the form of a powder, alumina is the preval earth. If the matter be of a dark or browniſh colour, it contains oxide of iron; if it is g green, manganeſe is preſent; if yellowiſh gr chromum. When the crucible has been ta from the fire, and wiped on the outſide, it is to placed in a capſule of porcelain, and filled w water. This water is to be renewed from ti to time, till all the matter is detached from crucible. The water diſſolves a part of the co binat bination of the alkali with the ſilica and alumina of the ſtone; and if a ſufficient quantity were uſed, it would diſſolve the whole of that combination.

"Muriatic acid is now to be poured in till the whole of the matter is diſſolved. At firſt a flaky precipitate appears, becauſe the acid combines with the alkali which kept it in ſolution. Then an effervescence takes place, owing to the decompoſition of ſome carbonat of potaſs, formed during the fuſion. At the ſame time the flaky precipitate is rediſſolved; as is alſo that part of the matter, which, not having been diſſolved in the water, had remained at the bottom of the diſh in the form of a powder. This powder, if it conſiſts only of ſilica and alumina, diſſolves without effervescence; but if it contains lime, an effervescence takes place. If this ſolution be colourleſs, we may conclude, that it contains no metallic oxide, or only a very ſmall portion; if its colour be purpliſh red, it contains mangane ſe; orange red indicates the preſence of iron; and golden yellow that of chromum.

"This ſolution is to be poured into a capſule of porcelain, covered with paper, and evaporated to dryneſs in a ſand bath. When the evaporation is drawing to its completion, the liquor aſſumes the form of jelly. It muſt then be ſtirred conſtantly with a glaſs or porcelain rod, to facilitate the diſengagement of the acid and water, and to prevent one part of the matter from being too much and the other not ſufficiently dried. Without this precaution the ſilica and alumina would not be completely ſeparated from each other.

"When the matter is reduced almoſt to a dry powder, a large quantity of pure water is to be poured on it; and after expoſure to a ſlight heat the whole is to be poured on a filter. The powder which remains on the filter is to be waſhed repeatedly, till the water with which it has been waſhed ceaſes to precipitate ſilver from its ſolutions. This powder is the whole of the SILICA which the ſtone we are analyſing contained. It muſt firſt be dried between folds of blotting paper; then heated red hot in a platinum or ſilver crucible, and weighed while yet warm. It ought to be a fine powder, of a white colour, not adhering to the fingers, and entirely ſoluble in acids. If it be coloured, it is contaminated with ſome metallic oxide; and ſhews that the evaporation to dryneſs has been performed at too high a temperature. To ſeparate this oxide the ſilica muſt be boiled with an acid, and then waſhed and dried as before. The acid ſolution muſt be added to the water which paſſed through the filter, and which we ſhall denominate A.

"The watery ſolution A is to be evaporated till its quantity does not exceed 30 cubic inches, or nearly an Engliſh pint. A ſolution of carbonat of potaſs is then to be poured into it, till no more matter precipitates. It ought to be boiled a few minutes to enable all the precipitate to fall to the bottom. When the whole of the precipitate has collected at the bottom, the ſupernatant liquid is to be decanted off; and water being ſubſtituted in its place, the precipitate and water are to be thrown upon a filter. When the water has run off, the filter, with the precipitate upon it, is to be placed between folds of blotting paper. When the precipitate has acquired ſome conſiſtence, it is to be carefully collected by an ivory knife, mixed with a ſolution of pure potaſs, and boiled in a porcelain capſule. If any alumina or glucina be preſent, they will be diſſolved in the potaſs; while the other ſubſtances remain untouched in the form of a powder, which we ſhall call B.

"Into the ſolution of potaſs as much acid muſt be poured as will not only ſaturate the potaſs, but completely rediſſolve any precipitate which may have at firſt appeared. Carbonat of ammonia is now to be added in ſuch quantity, that the liquid ſhall taſte of it. By this addition the whole of the ALUMINA will be precipitated in white fleaks, and the glucina will remain diſſolved, provided the quantity of carbonat of ammonia uſed be not too ſmall. The liquid is now to be filtered, and the alumina, which will remain on the filter, is to be waſhed, dried, heated red hot, and then weighed. To ſee if it be really alumina, diſſolve it in ſulphuric acid, and add a ſufficient quantity of ſulphat or acetite of potaſs; if it be alumina, the whole of it will be converted into cryſtals of ALUM.

"Let the liquid, which has paſſed through the filter, be boiled for ſome time; and the GLUCINA, if it contains any will be precipitated in a light powder, which may be dried and weighed. When pure, it is a fine, ſoft, very light, taſteleſs powder, which does not concrete when heated, as alumina does.

"The reſiduum B may contain lime, magneſia, and one or more metallic oxides. Let it be diſſolved in weak ſulphuric acid, and the ſolution evaporated to dryneſs. Pour a ſmall quantity of water on it. The water will diſſolve the *ſulphat of magneſia* and the *metallic ſulphate*; but the SULPHAT OF LIME will remain undiſſolved. Let it be heated red-hot in a crucible and weighed. The lime amounts to 0·42 of the weight. Let the ſolution, containing the remaining ſulphats, be diluted with a large quantity of water; let a ſmall exceſs of acid be added; and then let a ſaturated carbonat of potaſs be poured in. The oxides of chromum, iron, and nickel, will be precipitated, and the magneſia and oxide of mangane ſe will remain diſſolved. The precipitate we ſhall call C.

"Into the ſolution let a ſolution of hydroſulphuret of potaſs be poured, and the MANGANESE will be precipitated in the ſtate of a hydroſulphuret. Let it be calcined in contact with air, and weighed. The MANGANESE may then be precipitated by pure potaſs, waſhed, expoſed to a red heat, and then weighed.

"Let the reſiduum C be boiled repeatedly with nitric acid, then mixed with pure potaſs; after being heated, let the liquid be decanted off. Let the precipitate, which conſiſts of the oxides of iron and nickel, be waſhed with pure water; and let this water be added to the ſolution of the nitric acid and potaſs. That ſolution contains the *chromum* converted into an *acid*. Add to this ſolution an exceſs of muriatic acid, and evaporate till the liquid aſſumes a green colour; then add a pure alkali. The CHROMUM precipitates in the ſtate of an oxide, and may be dried and weighed.

"Let the precipitate, conſiſting of the oxides cific gravity and electrical properties are exceedingly different; nor do they reſemble each other in their combuſtibility. Charcoal takes fire at 370°, gives out a great deal of heat, and, when once kindled in oxygen gas, continues to burn till it be wholly conſumed. The diamond, before it can be burnt, muſt be expoſed to the ſun's rays in the focus of a large burning glaſs, or to a heat not under 5000°; even then it conſumes but ſlowly, and ceaſes to burn the inſtant the action of the burning glaſs is withdrawn. Its ſurface aſſumes a black colour like charcoal; this cruſt is ſoon waſted, and another is formed in its place. In this manner a diamond, weighing 3·089 gr. Troy, gradually waſted away completely, when expoſed by Morveau for 1 hour and 40 min. in the focus of the celebrated burning glaſs of Tſchirnhauſen, while a thermometer expoſed to the ſun ſtood at 104°.

"Morveau found, that one part of diamond, during its combuſtion, combines with 4·592 parts of oxygen, and the carbonic acid gas formed amounts to 5·592 parts. Conſequently carbonic acid gas is compoſed of one part of diamond and 4·592 of oxygen, or 100 parts of carbonic acid gas are compoſed of 17·88 diamond and 82·12 oxygen. But Lavoiſier aſcertained, that one part of charcoal, when burnt, combines with 2·5714 parts of oxygen, and forms 3·5714 parts of carbonic acid gas. Conſequently 100 parts of carbonic acid gas are compoſed of 17·88 diamond and 82·12 oxygen. We have therefore this equation:

$$\begin{array}{ccccccc}\textit{Diamond.} & & \textit{Oxygen.} & & \textit{Charcoal.} & & \textit{Oxygen.}\\ 17{\cdot}88 & + & 82{\cdot}12 & = & 28 & + & 72\end{array}$$

Conſequently ſubtracting 72 parts of oxygen from both ſides of the equation, we have

$$\begin{array}{ccccc}\textit{Diamond.} & & \textit{Oxygen.} & & \textit{Charcoal.}\\ 17{\cdot}88 & + & 12{\cdot}12 & = & 28\end{array}$$

That is to ſay, 28 parts of charcoal are compoſed of 17·88 diamond and 12·12 oxygen. Of courſe 100 parts of charcoal are compoſed of 63·85 diamond, and 36·15 oxygen.

"Thus we ſee why diamond and charcoal poſſeſs different properties: the one is a ſimple ſubſtance; the other is a compound of the diamond and oxygen, or is what the French chemiſts call an OXIDE OF DIAMOND. The diamond, then, is that ſubſtance in a ſtate of purity, to which Lavoiſier and his aſſociates gave the name of *carbon:* charcoal is not *carbon*, as they ſuppoſed, but the *oxide* of carbon."

"We ſee here" (adds Dr THOMSON in a note) "the danger of introducing new terms, before we are acquainted with the ſubſtances which they are intended to repreſent. *Carbon* is now merely a uſeleſs ſynonyme for *diamond*. I ſhall uſe it, however, in preference, becauſe it prevents the neceſſity of altering the numerous terms derived from carbon, ſuch as *carbonic, carburet, carbonat, carbonated.*"

Though we agree with the learned Doctor in his general propoſition and concluſion, we cannot approve of his criticiſm on the word *carbon*. It is by no means "a *uſeleſs ſynonyme.*" Without it, or ſome equally expreſſive ſynonyme, the language of chemiſtry muſt have been debaſed by ſuch barbariſms as *diamondic, diamondet* or *diamonduret, diamondat, diamondated*, and the like. New diſcoveries in ſcience excite new ideas, and ne ideas ought to be expreſſed in new language. Ol words, ſuch as *charcoal* and *diamond*, to whic particular complex ideas have long been affixe are incapable of expreſſing theſe new ideas; an therefore LAVOISIER and his aſſociates did a mo eſſential ſervice to Chemiſtry, Mineralogy, an every other ſcience connected with them, by r forming the language of chemiſtry, and giving th ſcience a new nomenclature. It is only to be r gretted, that they did not render their improv ments ſtill more complete, by totally excludin from the new nomenclature ſuch words as *potaſ* *potaſs, potaſſa, pruſſiate*, &c. which ſavour mo of the barbariſm of the brazen age, than the el gant claſſic purity of the Auguſtan, or the nume rous diſcoveries and improvements of the 18t century.

For the other properties and phenomena of *ca* *bon*, as well as for the analyſis of *Bitumen, Nap* *tha*, and other mineral OILS, ſee CHEMISTR *Index*. We now return to Dr Thomſon's accoun of the analyſis of *Coals* and *Sulphur:* Vol. iv. p 139.

"COAL is compoſed of charcoal, bitumen, an ſome portion of earth. The earths may be de tected by burning completely a portion of the co to be analyſed. The aſhes, which remain aft incineration, conſiſt of the earthy part. Their na ture may be aſcertained by the rules laid down i the preceding chapter. For the method of aſcer taining the proportion of charcoal and bitumen i coal, we are indebted to Dr Kirwan.

"When nitre is heated red hot, and charcoal i thrown on it, a violent detonation takes place and if the quantity of charcoal be ſufficient, th nitre is completely decompoſed. Now it require a certain quantity of pure charcoal to decompoſ a given weight of nitre. From the experiment of Lavoiſier, it follows, that when the detonatio is performed in cloſe veſſels under water, 13· parts of charcoal are capable of decompoſing 1 parts of nitre. But when the detonation is per formed in an open crucible, a ſmaller proportio of charcoal is neceſſary, becauſe part of the nitr is decompoſed by the action of the ſurroundin air. Scheele found, that, under theſe circum ſtances, 10 parts of plumbago were ſufficient t decompoſe 96 parts of nitre; and Dr Kirwa found, that nearly the ſame quantity of charco was ſufficient for producing the ſame effect.

"MACQUER long ago obſerved, that no vola tile oily matter will detonate with nitre, unleſs i be previouſly reduced to a charcoal; and tha then its effect upon charcoal is preciſely propor tional to the charcoal which it contains. Dr Ki wan, upon trying the experiment with *vegetabl* *pitch* and *maltha*, found that theſe ſubſtances di not detonate with nitre, but merely burn upon it ſurface with a white or yellow flame; and tha after they were conſumed, nearly the ſame quan tity of charcoal was neceſſary to decompoſe th nitre, which would have been required if no bitu men had been uſed at all. Now coals are chiefl compoſed of charcoal and bitumen. It occurre therefore to Dr Kirwan, that the quantity o charcoal which any coal contains may be aſcer tained by detonating it with nitre: For, ſince th bitumen of the coal has no effect in decompoſing nitre, it is evident, that the detonation and decompoſition muſt be owing to the charcoal of the coal; and that, therefore, the quantity of coal, neceſſary to decompoſe a given portion of nitre, will indicate the quantity of carbon which it contains: and the proportion of charcoal and earth, which any coal contains, being aſcertained, its bituminous part may be eaſily had from calcination.

"The crucible which he uſed in his experiments was large; it was placed in a wind furnace, at a diſtance from the flue, and the heat in every experiment was as equal as poſſible. The moment the *nitre* was red hot, the coal, previouſly reduced to ſmall pieces of the ſize of a pin head, was projected in portions of one or two grains at a time, till the nitre would no longer detonate; and every experiment was repeated ſeveral times, to enſure accuracy. He found that 480 grains of nitre required 50 grains of *Kilkenny coal* to decompoſe it by this method. Therefore 10 grains would have decompoſed 96 of nitre; preciſely the quantity of charcoal which would have produced the ſame effect. Therefore Kilkenny coal is compoſed almoſt entirely of charcoal.

"Cannel coal, when incinerated, left a reſiduum of 3·12 in the 100 parts of earthy aſhes: 66·5 grains of it were required to decompoſe 480 grains of nitre; but 50 parts of charcoal would have been ſufficient: therefore 66·5 grains of cannel coal contained 50 grains of charcoal and 2·08 of earth; the remaining 14·42 grains muſt be bitumen. In this manner may the compoſition of any other coal be aſcertained.

"As for **Sulphur**, to aſcertain any accidental impurities with which it may be contaminated, it ought to be boiled in 30 times its weight of water, afterwards in diluted muriatic acid, and laſtly treated with nitro-muriatic acid. Theſe ſubſtances will deprive it of all its impurities, without acting on the ſulphur itſelf, if the proper cautions be attended to. The ſulphur may then be dried and weighed. The deficiency in weigh will mark the quantity of the ſubſtances which contaminate the ſulphur. The ſolutions may be evaporated and examined according to the rules laid down in the 3d and 4th chapters.

Chap. IV. "Analysis of Ores.

"The diverſity of metallic ores is ſo great, that no general method of analyſis can be given. Let us therefore" (ſays Dr Thomſon) "follow the different orders one by one, and point out the proper method of analyſing each. In this I ſhall follow **Bergman**, to whom we are indebted for the moſt preciſe treatiſe on the analyſis of ores, except when his methods have been ſuperſeded by the improvements of ſucceeding chemiſts.

"I. **Gold Ores.** The preſence of gold may eaſily be detected, by treating the mineral ſuppoſed to contain it with nitro-muriatic acid, and dropping muriat of tin into the ſolution. If the ſolution contains any gold, a purple precipitate immediately appears.

"*Native Gold* ought to be diſſolved in nitro-muriatic acid; the ſilver, if any be preſent, falls to the bottom in the ſtate of muriat, and may be ſeparated by filtration and weighed. Pour ſulphat of iron into the ſolution, and the gold is precipitated in the metallic ſtate. The copper, if any be preſent, may be precipitated by a plate of iron. The preſence of iron may be aſcertained, by dropping tincture of nut-galls into a portion of the ſolution.

"The *Auriferous Pyrites* may be treated with diluted nitrous acid, which diſſolves the iron, and ſeparates the ſulphur. The gold remains inſoluble in the ſtate of ſmall grains.

"II. **Ores** *of* **Platinum.** The moſt complete treatiſe on the analyſis of this metal is that of **Proust**. But even his experiments are not ſufficient to make us thoroughly acquainted with this complicated ore. Prouſt firſt ſeparates the ſand with which the grains of platina are mixed, by expoſing them to the blaſt of air. By heat he evaporates the mercury which ſtill adheres to them, and then picks out the grains of gold, thus rendered viſible. The ore is then diſſolved in an acid compoſed of one part nitre and three parts muriatic acid. A black powder remains This powder, when roaſted, gives out phoſphorus and ſulphur. After this it is diſſolved by nitro-muriatic acid, except a ſmall reſiduum, which is plumbago. The ſolutions are then mixed. They conſiſt of muriats of platinum and oxy-muriats of copper and iron. By evaporating till the liquid, when cold, aſſumes a conſiſtency greater than honey, and inclining the retort, the oxy-muriats run off, and leave the muriat of platinum, which may be obtained pure by repeated ſolutions and cryſtallizations. The ſolution containing the muriats, and perhaps alſo a little platinum, is to be diluted with a great proportion of water and pure ammonia dropt in. The red oxide of iron precipitates, and may be eſtimated by weighing it. When the ſolution is ſomewhat concentrated, ammonia precipitates the platinum in the ſtate of a triple ſalt; and the copper, which now only remains, may be precipitated by a plate of iron.

"III. **Ores** *of* **Silver.** The analyſis of the ores of ſilver has been always conſidered as very important, on account of the great value of the metal.

"1. *Native Silver* is to be diſſolved in nitric acid. The gold, if the ore contains any, remains in the ſtate of a black powder, and may be dried and weighed. The ſilver may be precipitated by common ſalt: 100 parts of the precipitate, dried, denote about 75 parts of ſilver. The preſence of copper may be aſcertained by the green colour of the ſolution, and by the blue colour it aſſumes on adding ammonia. The copper may be precipitated by a plate of iron, or by the rules laid down hereafter. When the ore contains arſenic, its proportion may be eſtimated by weighing before and after fuſion; for the arſenic is diſſipated by heat; or the ore may be diſſolved in nitric acid, which acidifies the arſenic. After the ſeparation of the ſilver, the arſenic acid may be precipitated by nitrat of lead; 100 parts of the dry precipitate indicating about 22 of the arſenic.

"2. *Alloy of Silver and Antimony* is to be treated with nitric acid, which diſſolves the ſilver, and oxidates the antimony. The ſilver is eſtimated as above. The oxide of antimony may be reduced by fuſion with 4 times its weight of black flux and a little ſoap.

“ 3. *Sulphuret of Silver* is to be treated with diluted nitric acid, which diſſolves the ſilver, leaving the greater part of the ſulphur untouched. The reſiduum is to be dried, and then the ſulphur burnt off. The loſs of weight gives the ſulphur. The reſiduum is the gangue of the ore, which may be analyſed by the rules laid down in the” laſt “ chapter. The ſilver is to be precipitated by common ſalt; and the other metals, if any be preſent, may be aſcertained as above. Part of the ſulphur is always acidified. The acid thus formed may be precipitated by nitrat of barytes; 100 parts of the dried precipitate indicating about 14·5 of ſulphur.

“ 4. *Antimoniated Silver Ore* was analyſed by Klaproth thus: 100 parts were boiled in diluted nitric acid. The reſiduum waſhed and dried was 26. Theſe 26 were digeſted in nitro-muriatic acid. The reſiduum now weighed 13 (ſo that 13 had been diſſolved), 12 of which were ſulphur, and burnt away, leaving one part of ſilica. The nitro-muriatic ſolution, when diluted largely with water, let fall a precipitate, which weighed 13 (or 10 of pure antimony), and had the properties of oxide of antimony; for they did not evaporate till heated to redneſs; but, at that temperature, were diſſipated in a grey ſmoke. The nitric ſolution was green. Common ſalt occaſioned a precipitate, which weighed 87·75, equivalent to 65·81 of pure ſilver. After the ſeparation of this muriat of ſilver, ſulphat of ſoda occaſioned no precipitate. Therefore the ſolution contained no lead. When ſuperſaturated with ſoda, a grey precipitate fell, weighing 5 parts. On burning coals this precipitate gave out an arſenical ſmell. It was rediſſolved in nitric acid; ſulphurated alkali occaſioned a ſmutty brown precipitate; and the pruſſic alkali a pruſſian blue, which, after torrefaction, was magnetic. Hence he concluded, that theſe 5 parts were a combination of iron and arſenic acid.—The nitric ſolution which had been ſuperſaturated with ammonia was blue; he therefore ſuſpected that it contained copper. To diſcover this, he ſaturated it with ſulphuric acid, and put into it a poliſhed plate of iron. The quantity of copper was ſo ſmall, that none could be collected on the iron.

“ 5. *Sulphuret of Silver and Copper* may be analyſed as N° 3, ſeparating the copper by a plate of iron.

“ 6. *Calciform Silver Ore* may be analyſed as N° 2, ſeparating the copper by an iron plate, and eſtimating the carbonic acid that eſcapes when the ore is heated or diſſolved in nitric acid.

“ 7. *Red Silver Ore* was analyſed by Vauquelin thus: 100 parts were digeſted in 500 parts of nitric acid previouſly diluted with water. The undiſſolved reſiduum, being waſhed and dried, weighed 42·06. Being treated with muriatic acid, it was all diſſolved except 14·66 parts, which were ſulphur. The muriatic ſolution, when diluted with a great quantity of water, depoſited a white powder, which weighed 21·25, and was oxide of antimony. The nitric acid ſolution remained to
examined. Muriatic acid occaſioned a heavy p
cipitate, which weighed 72·66 parts, and wh
was muriat of ſilver. Re-agents ſhewed, that
acid retained no other ſubſtance in ſolution.

“ 8. *Muriat of Silver* was analyſed by Klapr
as follows: 100 parts were mixed with thr
their weight of pure carbonat of potaſs, and mel
together in a glaſs retort. The maſs was d
ſolved in water, and the ſolution filtered. A
ſiduum remained, which was diſſolved in nit
acid, with the exception of a red powder; whi
treated with nitro-muriatic acid, was diſſolv
except a little muriat of ſilver, which, when
duced, yielded 0·5 of pure ſilver. Ammonia p
cipitated from the nitro-muriatic ſolution
parts oxide of iron. The nitric ſolution was p
cipitated by common ſalt; the muriat of ſil
thus obtained, yielded, when reduced, 67·25
pure ſilver. The original aqueous ſolution of
alkaline maſs was ſaturated with acetous acid,
which it depoſited 1·75 parts of alumina. T
ſolution was evaporated to dryneſs, and the d
maſs treated with alcohol, which diſſolved
acetite of potaſs. The reſiduum, amounting
58·75 parts, was diſſolved in water; and bei
treated with muriat of barytes, 15 parts of ſ
phat of barytes precipitated, indicating the p
ſence of about 0·5 of ſulphuric acid, 0·75 ſulph
of potaſs. The remaining 58 parts were mur
of potaſs, indicating about 21 parts of muria
acid.

“ IV. Ores *of* Mercury. We have very f
exact analyſes of the ores of mercury, owing, p
haps, to the facility with which the mercury
extracted from them by diſtillation.

“ 1. *Native Mercury* and *Amalgam* may be d
ſolved in nitric acid. The gold, if any be preſe
remains in the ſtate of powder, and may be e
mated by its weight. The affuſion of water p
cipitates biſmuth. Common ſalt precipitates
ſilver and part of the mercury; but the latter m
be rediſſolved by a ſufficient quantity of wat
or, which is far better, of oxy-muriatic acid, wh
the muriat of ſilver remains inſoluble. Laſtly,
mercury may be precipitated by ſulphat of ir
and eſtimated.

“ 2. *Native Cinnabar* may be treated with
mixture of 3 parts muriatic and 1 nitric ac
which diſſolves the mercury, and leaves the ſ
phur. The mercury may then be eſtimated,
the laſt.

“ 3. *Hepatic Mercurial Ore* has not been a
lyſed. It may be attempted as in N° 2; or
diſſolving it in nitric acid.

“ 4. *Muriat of Mercury* may be digeſted in m
riatic acid till the whole is diſſolved. Muriat
barytes precipitates the ſulphuric acid, 100 pa
of which are equivalent to 186 of ſulphat
mercury; and the proportion of this ſalt bei
known, we have that of muriat.

“ V. Ores *of* Copper.

“ 1. *Native Copper* ſometimes contains gold, ſ
ver, or iron. It may be diſſolved in nitric aci
the gold remains in the ſtate of a blackiſh, or
ther violet-coloured powder; the ſilver may
ſeparated by a poliſhed plate of copper; (or p

cipita

cipitated from a portion of the ſolution by common ſalt;) the iron may be ſeparated by boiling the ſolution to dryneſs, and treating the reſiduum with water. By this proceſs, the nitrat of iron is decompoſed; the oxide of iron remains, while the water diſſolves the nitrat of copper. This ſalt may be decompoſed by boiling it with potaſh: the precipitate dried in a red heat, is black oxide of copper: 100 parts of it denote 80 of metallic copper.

"2. *Sulphuret of Copper* may be diſſolved in diluted nitric acid. Part of the ſulphur remains unaltered, and may be eſtimated by weighing it, and burning it off. Part is acidified, and may be precipitated by nitrat of barytes; 100 parts of the dried precipitate indicating 14·5 of ſulphur. By evaporation to dryneſs, and ſolution of water, the iron is ſeparated; and the copper may be eſtimated as in N° 1; or muriatic acid may be uſed inſtead of nitric: but in that caſe it is more difficult to obtain a complete ſolution.

"3. *Grey Copper Ore* was analyſed by Klaproth thus: 300 parts of it were digeſted with 4 times their weight of nitric acid. This operation was repeated, and the 2 acid liquids mixed. The undiſſolved reſiduum was 188 parts. The nitric ſolution was green, and when common ſalt was added, muriat of ſilver precipitated. The ſolution being now ſuperſaturated with ammonia, 9·5 parts of a flaky red precipitate were obtained; which was found to be compoſed of ſilica, alumina, and iron, by diſſolving it in muriatic acid, and proceeding according to the rules laid down in the 2d chapter. A poliſhed iron plate precipitated from the nitric ſolution 69 parts of copper. The 188 parts reſiduum were boiled with 6 times their weight of muriatic acid; 105·5 parts remained, which were ſulphur and ſilica. The muriatic acid ſolution, being concentrated, yielded a little muriat of ſilver. Being diluted with a large portion of water, a white powder precipitated, which weighed 97·5 parts, and was oxide of antimony.

"4. *Red Copper Ore* has only to be diſſolved in muriatic acid, and the copper precipitated by a plate of iron: 88 parts of the precipitated copper being equivalent to 100 of the orange oxide, of which the ore is compoſed.

"5. The analyſis of the *Oxides* and *Carbonats of Copper* ſcarcely requires any remarks. The water and carbonic acid muſt be eſtimated by diſtillation in cloſe veſſels, and collecting the products. The ore may then be diſſolved in nitric acid, and its copper aſcertained as above.

"6. *Arſeniat of Copper* was thus analyſed by Mr Chenevix: The ore was diſſolved in diluted nitric acid, and nitrat of lead poured in. The ſolution was evaporated till a precipitate began to appear, and then mixed with alcohol. Arſeniat of lead precipitated: 100 parts of this ſalt indicate 33 of arſenic acid. The copper was ſeparated from the nitric acid by boiling it with potaſh.

"VI. Ores of Iron. Notwithſtanding the great variety of iron ores, they may be all, as far as analyſis is concerned, arranged under 3 heads; viz. 1. *Sulphurets*; 2. *Oxides*; and 3. *Salts*.

"1. *Pyrites*, or *Sulphurated Iron*, may be treated repeatedly with boiling nitric acid, till the ſulphur is acidified. Muriatic acid is then to be added, and the digeſtion continued till the whole be diſſolved. Muriat of barytes is then to be added, to precipitate the ſulphuric acid; 100 of the dried precipitate indicates 14·5 of ſulphur. If the ſolution contains only iron, it may be precipitated by carbonat of ſoda, calcined to redneſs, and weighed. But if earths or manganeſe be preſent, we muſt proceed by the rules laid down in the 2d chapter.

"2. If the *Oxides of Iron* be pure, *i. e.* contain nothing but iron, we have only to diſſolve them in muriatic acid, and precipitate them as above. But it is very ſeldom that ores poſſeſs this degree of purity. The iron is uſually combined with manganeſe, alumina, ſilica, or all theſe together. The analyſes are to be conducted exactly by the rules in the 2d chapter.

"3. *The Sparry Iron Ore* may be analyſed in the ſame manner, excepting only that the carbonic acid muſt be ſeparated by diſtillation or ſolution in cloſe veſſels, and eſtimated.

"4. *Arſeniat of Iron* was analyſed by Mr Chenevix thus: 100 parts of it were boiled with potaſs till the arſenic acid was ſeparated. Nitrat of lead was mixed with the ſolution; 100 parts of the ſolution indicated 33 of arſenic acid. That portion of the ore which eluded the action of the potaſs, was treated with muriatic acid; the undiſſolved reſiduum was ſilica. The muriatic acid was ſuperſaturated with ammonia. The iron precipitated, but the copper was diſſolved by the ammonia.

"VII. Ores of Tin. For the method of analyſing the ores of tin we are ſolely indebted to Klaproth. Bergman's mode does not ſucceed.

"1. *The Sulphuret of Tin* was thus analyſed by Klaproth: 120 parts of the ore were digeſted with nitro-muriatic acid: 43 parts remained undiſſolved. Of theſe, 30 burnt away with a blue flame, and were ſulphur; of the remaining 13, 8 diſſolved in nitro-muriatic acid. The undiſſolved 5 were heated with wax, and yielded a grain of iron attracted by the magnet. The reſt was a mixture of alumina and ſilica. The nitro-muriatic ſolution was completely precipitated by potaſs, and the precipitate rediſſolved in muriatic acid. A cylinder of tin precipitated 44 parts of copper from this ſolution, and loſt itſelf 89 parts of its weight. A cylinder of zinc precipitated 130 parts of tin; ſo that deducting the 89 parts of tin diſſolved during the precipitation of the copper, 41 remained for the tin contained in the ore.

"2. *Tinſtone* was thus analyſed by Klaproth: 100 parts of the ore were heated to redneſs, with 600 parts of potaſs, in a ſilver crucible; and the mixture being treated with warm water, 11 parts remained undiſſolved. Theſe 11, by a repetition of the treatment with potaſs, were reduced to 2¼. This ſmall reſiduum diſſolved in muriatic acid. Zinc precipitated from the ſolution one half part of tin, and the pruſſian alkali gave a blue precipitate, which indicated one 4th part of iron. The alkaline ſolution was ſaturated with muriatic acid: a white precipitate appeared, but was rediſſolved by adding more acid. The whole was precipitated by carbonat of Soda. The ſolution, which had a yellowiſh colour, was rediſſolved in muriatic acid: and a cylinder of zinc being inſerted into the ſolution, 77 of tin were obtained, indicating nearly 98 parts oxide of tin.

" VIII. Ores *of* Lead.

" 1. *Sulphuret of Lead* uſually contains a little ſilver, and ſometimes alſo antimony and zinc. It may be treated with diluted nitric acid, which leaves only the ſulphur undiſſolved, the weight of which is to be taken, and its purity determined by combuſtion. If antimony be preſent, it will either remain in the ſtate of a white oxide, or, if diſſolved, will be precipitated by diluting the ſolution with water. Muriatic acid is to be added, and the ſolution evaporated till it is reduced to a ſmall portion. Muriat of lead and of ſilver precipitate. The firſt of theſe may be diſſolved in boiling water; the 2d remains inſoluble. Weſtrum ſeparated the muriat of ſilver, by digeſting the precipitate with ammonia. The liquid from which the muriats are ſeparated may contain iron, zinc, copper. The iron may be precipitated by ammonia added in exceſs: the copper by a plate of zinc: the zinc by carbonat of ſoda, reduced to the metallic ſtate and weighed, ſubtracting what had been ſeparated from the plate of zinc.

" 2. *Plumbiferous Antimoniated Silver Ore* was thus analyſed by Klaproth: It was digeſted with 7 times its weight of nitric acid, by which part was diſſolved. The reſiduum was treated repeatedly with muriatic acid, which was poured off while boiling hot. What remained undiſſolved was ſulphur mixed with a little ſilica. Common ſalt was added to the nitric ſolution: 2 precipitates appeared; 1. A heavy fleaky one, which was muriat of ſilver: 2. Acicular cryſtals of muriat of lead. Theſe cryſtals were diſſolved in water, and the ſolution added to the nitric ſolution. From this ſolution, ſulphat of ſoda precipitated a heavy white powder, which was ſulphat of lead. Laſtly, ammonia afforded a precipitate, which was a mixture of iron and alumina. The muriatic ſolution being concentrated, cryſtals of muriat of lead appeared; the concentration was continued as long as any cryſtals formed. The reſiduum, being diluted with water, gave a white precipitate, which was oxide of antimony.

" 3. *The Biſmuthic ſilver ore* was analyſed by Klaproth nearly in the ſame manner.

" 4. *Carbonat of Lead* may be diſſolved in nitric acid, collecting and eſtimating the carbonic acid. By boiling the ſolution, the iron and antimony (if preſent) will be ſeparated, and may be eſtimated by ſolution in muriatic acid; precipitating the antimony by water, and the iron by ammonia. From the nitric ſolution the lead may be precipitated by ſulphuric acid, and the earth may be examined by the rules laid down in the 2d chapter.

" 5. *Phoſphat of Lead* may be diſſolved in boiling muriatic acid. The ſolution is to be diluted with water, till the cryſtals of muriat of lead are diſſolved; being then ſaturated with ammonia, the lead and iron are precipitated. Diſſolve the precipitate in muriatic acid, evaporate to dryneſs, and treat the dry maſs with alcohol. The muriat of iron is diſſolved; but the muriat of lead remains. Finally, drop lime water into the ammoniacal ſolution, as long as any precipitate appea That precipitate indicates the proportion of ph phoric acid.

" 6. *Arſeniat of Lead* has not been analyſed. might be treated with an alkali which would parate the lead. This metallic precipitate is th to be rediſſolved in nitric acid, and analyſed the methods above deſcribed. The alkaline ar niat may be diſſolved in water, and treated wi nitrat of lead; 100 parts of the dry precipitate i dicate 33 of lead.

" 7. *Molybdat of Lead* was thus analyſed by Hatchet. The ore was boiled repeatedly wi ſulphuric acid, till the acid refuſed to diſſolve a more. The ſolution contained the molybdic ac The undiſſolved powder (ſulphat of lead) w boiled for an hour with carbonat of ſoda, a then waſhed. Nitric acid now diſſolved it, e cept a little ſilica. The lead was precipitat from this ſolution by ſulphuric acid; after whi ammonia ſeparated a little oxide of iron. T ſulphuric acid ſolution was diluted with 16 pa of water, and ſaturated with ammonia; a litt oxide of iron gradually precipitated. The ſol tion was now evaporated to dryneſs, and the ma ſtrongly heated, to ſeparate the ſulphat of amm nia. The reſiduum, repeatedly treated with nit acid, was converted into yellow molybdic acid.

" IX. Ores *of* Nickel. No exact method analyſing the ores of nickel has yet been publiſhe

" 1. *Kupfer Nickel* may be diſſolved in nitr acid, by which the greater part of the ſulphur w be ſeparated. The arſenic may be afterwar precipitated by the affuſion of water. A plate iron will expel the copper. Precipitate by pota added in exceſs, and boil the precipitate, whi will ſeparate the arſenic and ſulphur complete Diſſolve the precipitate (previouſly expoſed mo for ſome time to the air) in acetous acid, and ad an exceſs of ammonia. The iron is precipitate but the cobalt and nickel remain in ſolutio Evaporate, and the cobalt is depoſited; then, continuing the evaporation to dryneſs, the nick is obtained.

" 2. *The Arſeniat of Nickel* may be boiled wi potaſs, which ſeparates the acid; the reſiduu may be analyſed as N° 1.

" X. Ores *of* Zinc.

" 1. *Blende* may be treated with diluted nitr acid, which will ſeparate the ſulphur, the ſilice gangue, &c. The purity of the ſulphur is to aſcertained by combuſtion, and the reſidu analyſed in the manner formerly deſcribed. Pr cipitate the nitric ſolution by ſoda; rediſſolve muriatic acid: precipitate the copper by a pl of iron; ſeparate the iron by an exceſs of am nia. The zinc now only remains in the ſoluti and may be obtained by evaporating to dry rediſſolving in muriatic acid, and precipitating ſoda.

" 2. *Calamine* may be digeſted in nitric ac and the inſoluble reſiduum boiled with muri acid repeatedly; what remains, after diluti with boiling water, is ſilica. The nitric ſoluti contains zinc, and probably alſo iron and alumi evaporate to dryneſs, rediſſolve, and add an ex of ammonia. The iron and alumina either rem undiſſolved, or are precipitated, and may be ſep rate ated by potaſs. The zinc may be precipitated by an acid, or by evaporation to dryneſs. The muriatic ſolution probably contains iron and alumina, which may be precipitated by the rules already laid down.

" XI. Ores *of* Antimony.

" 1. *Native Antimony* may be treated with nitric acid, which will oxidate the antimony, and only diſſolve the arſenic. This laſt metal may be precipitated by concentration and the affuſion of water. What remains with the antimony may be diſſolved by digeſtion in boiling water.

" 2. *Sulphuret of Antimony* is to be treated with nitro-muriatic acid. The ſulphur and the muriat of ſilver (if any be preſent) will remain. Water precipitates the antimony; ſulphuric acid, the lead; and ammonia the iron.

" XII. Ores *of* Bismuth.

" *Native Biſmuth* may be treated with nitric acid. Repeated concéntrations and affuſions of water precipitate the biſmuth, and perhaps the arſenic; but this laſt may be rediſſolved in boiling water. The cobalt remains, and may be examined by the rules laid down" in § XV. " The ſame analyſis ſucceeds with the other ores of *cobalt*. The ſulphur, when preſent, remains undiſſolved.

" XIII Ores *of* Tellurium.

" Klaproth diſſolved the *White Gold Ore of Fatzbay* in nitro-muriatic acid, and added potaſs in exceſs to the ſolution. A brown precipitate remained undiſſolved, which was a mixture of gold and iron. It was rediſſolved in nitro-muriatic acid; the gold firſt precipitated by nitrat of mercury, and then the iron by potaſs. The potaſs in the firſt ſolution being ſaturated with muriatic acid, the oxide of tellurium precipitated. The other ores may be analyſed in the ſame manner, only the precipitate occaſioned by the potaſs muſt be treated according to the metals of which it conſiſts.

" XIV. Ores *of* Arsenic.

" 1. *Native Arſenic* may be treated with nitro-muriatic acid. The ſilver and gold remain; the 1ſt in the ſtate of a muriat; the 2d may be diſſolved by nitro-muriatic acid, and precipitated by ſulphat of iron. The arſenic may be precipitated by concentrating the nitric ſolution, and then diluting with water. The iron may then be precipitated by ammonia.

" 2. *The Sulphurated Ores of Arſenic* may alſo be treated with diluted nitro-muriatic acid. The ſulphur remains undiſſolved; the arſenic may be precipitated by concentration and the affuſſion of water; the iron by ammonia.

" 3. *Oxide of Arſenic* may be diſſolved in 16 parts of water. The ſolution diſplays acid properties, and nitrat of ſilver and of mercury occaſion precipitates in it.

" XV. Ores *of* Cobalt.

" 1. *White Cobalt Ore* was thus analyſed by Tassaert. To aſcertain the proportion of arſenic, he treated the ore with diluted nitric acid, and obtained a complete ſolution. Cryſtals of white oxide of arſenic were depoſited, and by repeated evaporations he ſeparated the whole of the arſenic, and aſcertained its weight. He then boiled a new portion of the ore with four times its weight of nitric acid, and thus acidified the arſenic, and obtained a ſolution. This ſolution was treated with potaſs, which retained the arſenic acid, and ſeparated the other bodies. A pecipitate of arſenic of cobalt, which had fallen when the nitric ſolution was diluted with water, was treated with potaſs.—The reſiduum, with the precipitate occaſioned by the potaſs, was diſſolved in nitric acid, and ammonia added in exceſs. Part was retained in ſolution by the ammonia, but part was precipitated. The precipitate was diſſolved in acetous acid, and the ſolution repeatedly evaporated to dryneſs. By this proceſs the oxide of iron gradually ſeparated in the form of a red powder. The diſſolved part was acetite of cobalt. It was decompoſed by the addition of ammonia in exceſs, which rediſſolved the cobalt. By theſe proceſſes the arſenic and iron were ſeparated; the cobalt was retained by the ammonia, and was obtained by evaporation. To aſcertain the proportion of ſulphur in the ore, a new portion was boiled with nitric acid. On cooling, cryſtals of white oxide of arſenic were depoſited. Theſe being ſeparated, nitrat of barytes was added to the ſolution; 100 parts of the dried precipitate indicated 14·5 of ſulphur. The other ores of cobalt may be analyſed nearly in the ſame way." See § XII.

" XVI. Ores *of* Manganese.

" 1. *Barytated Manganeſe* was treated by Vauquelin with muriatic acid; oxy-muriatic gas paſſed over, and the whole was diſſolved except a little charcoal and ſilica. The ſolution when evaporated yielded cryſtals of muriat of barytes. Theſe were ſeparated; and the liquid, evaporated to dryneſs, yielded a yellow maſs ſoluble in alcohol, and tinging its flame with yellow brilliant ſparks. The proportion of barytes was aſcertained by precipitating it in the ſtate of a ſulphat; the mangaueſe, by precipitating it by carbonat of potaſs.

" 2. *The Grey Ore of Manganeſe* was treated by the ſame chemiſt with muriatic acid; ſome ſilica remained undiſſolved. Carbonat of potaſs was added to the ſolution. The precipitate was at firſt white, but became black when expoſed to the air. It was treated with nitric acid, which diſſolved every thing. The nitric ſolution, when mixed with carbonat of potaſs, depoſited only carbonat of lime. The black reſiduum was mixed with ſugar, and treated with nitric acid. The ſolution was complete; therefore no iron was preſent. When preſent it may be ſeparated, either as above, or by the rules laid down in the 2d chapter.

" XVII. Ores *of* Tungsten.

" 1. *Wolfram* was analyſed by the Elhuyarts, and by Vauquelin and Hecht, nearly as follows: The ore was boiled with muriatic acid, and then digeſted with ammonia alternately till the whole was diſſolved. The ammoniacal ſolution, being evaporated to dryneſs and calcined, left the yellow oxide of tungſten in a ſtate of purity. The muriatic ſolutions were mixed with ſulphuric acid, evaporated to dryneſs, and the reſiduum rediſſolved in water. A little ſilica remained. Carbonat of potaſs precipitated a brown powder from this ſolution. This powder was treated with boiling nitric acid repeatedly, till the iron which it contained was oxidated to a maximum. It was then digeſted in acetous acid, which diſſolved the mangaueſe, and left the iron. Finally the manganeſe was precipitated by an alkali.

"2. *Tungſtat of Lime* may be treated with nitro-muriatic acid till every thing ſoluble is taken up. The reſiduum is yellow oxide of tungſten. Its purity may be tried by ſolution in ammonia. The nitro-muriatic ſolution contains lime, and perhaps a little iron and alumina. It may be examined by the rules laid down in the 2d chapter.

"XVIII. ORES *of* MOLYBDENUM. *Molybdena* may be treated with nitric acid, and ſucceſſively boiled upon it, till it is converted into a white powder. This powder, waſhed and dried, is *molybdic acid*. The liquid obtained by waſhing the acid, on the addition of potaſs, depoſits ſome more molybdic acid. This being ſeparated, muriat of barytes is to be dropt into it, as long as any precipitate appears: 100 parts of this precipitate indicate 14·5 of ſulphur.

"XIX. ORES *of* URANIUM.

"1. *Pechblende*, or the *Black Ore of Uranium*, was diſſolved by Klaproth in nitric acid. The undiſſolved part is a mixture of ſilica and ſulphur. By evaporating the ſolution, nitrat of lead was precipitated; then nitrated uranium in cryſtals. The ſolution being now evaporated to dryneſs, and treated again with nitric acid, left the iron in the ſtate of red oxide.

"2. *Uranitic Ochre* may be treated with nitric acid, which diſſolves the uranium, and leaves the iron. The purity of the iron may be tried by the rules already laid down.

"3. *Green Mica* was diſſolved by Klaproth in nitric acid, and ammonia added in exceſs to the ſolution. The oxide of uranium was precipitated; that of copper retained.

"XX. ORES *of* TITANIUM.

1. "The ores of Titanium, reduced as uſual to a fine powder, are to be fuſed with potaſs or its carbonat. The melted maſs is then to be diſſolved in hot water. A white precipitate gradually appears, which is the *white oxide of titanium*. This is all that is neceſſary to analyſe the *firſt* ſpecies.

2. "But when iron and ſilica are preſent, the following method of Chenevix may be adopted. Saturate the alkaline ſolution with muriatic acid. White oxide of titanium precipitates. Separate the precipitate, and evaporate the ſolution to dryneſs. Rediſſolve the reſiduum in water. The ſilica remains behind. Precipitate the ſolution by an alkali; add the precipitate to the white oxide obtained, and diſſolve the whole in ſulphuric acid. From this ſolution phoſphoric acid precipitates the titanium, but leaves the iron.

3. "The 3d ſpecies, which contains lime and no iron, is to be fuſed with potaſs, diſſolved in muriatic acid, and the ſilica ſeparated in the uſual way. After this the titanium is firſt to be ſeparated from the muriatic ſolution by ammonia; and afterwards the lime by an alkaline carbonat.

"XXI. ORES *of* CHROMUM.

"1. Vauquelin analyſed the *Chromat of Lead* thus. When boiled with a ſufficient quantity of carbonat of potaſs, a lively efferveſcence takes place; the acid combines with the potaſs, and the carbonat of lead is formed, and remains undiſſolved. It may be diſſolved in nitric acid, and it quantity aſcertained by precipitation with ſulphuric acid. Or the chromat may be treated with muriatic acid; muriat of lead precipitates and chromic acid remains in ſolution. This proceſs muſt be repeated till the whole of the ore is decompoſed. There remains in ſolution chromic acid, mixed with a little muriatic, which may be ſeparated by oxide of ſilver.

"2. TASSAERT analyſed the *chromat of iron* a follows: It was melted with 8 times its weight o potaſs in a crucible. The reſulting maſs diſſolved in water, except a brown powder. This reſiduum was treated with muriatic acid, which diſſolved a part of it. The reſiduum was treated as at firſt with potaſs and muriatic acid, till the whole wa diſſolved. The alkaline ſolution contained the chromic acid; the muriatic ſolution the iron, ſtill mixed with a little chromum. It was precipitated by potaſs, and the precipitate boiled with that alkali, to ſeparate the whole of the chromic acid. What remained was pure oxide of iron The cromic ſolutions were ſaturated with nitric acid, and mixed with nitrat of lead. The reſulting precipitate indicated the proportion of chromic acid; for 100 parts of chromat of lead indicate about 35 of chromic acid."

XXII. ORES *of* COLUMBIUM. See *Part* II *Chap*. VII. *Order* XXII.

CHAP. V. "METHOD OF OBTAINING PURE METALS.

"The method of analyſing the different ores with preciſion being aſcertained, we have it in our power to obtain the metals in a ſtate of Purity." In his IVth Section Dr THOMSON gives the following "ſhort view of the proceſſes commonly employed for that purpoſe.

"1. GOLD. To obtain pure gold, we have only to diſſolve the gold of commerce in nitro-muriatic acid, and precipitate the metal, by dropping a very diluted ſolution of ſulphat of iron; the powder which precipitates, after being well waſhed and dried, is pure gold.

"2. PLATINUM can ſcarcely be obtained perfectly pure in the metallic ſtate, at leaſt in any conſiderable quantity; becauſe a ſufficient heat for melting it cannot be obtained. But its oxide may be procured quite pure from the muriat of platinum and ammonia, prepared by the rules laid down in the laſt chapter, § II. This ſalt is to be decompoſed by a violent heat, and the reſiduum, if neceſſary, may be rediſſolved in nitro-muriatic acid, and precipitated with ſoda.

"3. SILVER. Diſſolve the ſilver of commerce in nitric acid, and precipitate with a diluted ſolution of ſulphat of iron. The precipitate is pure ſilver. Or precipitate with common ſalt; form the precipitate into a paſte with ſoda; put it into a crucible lined with ſoda, and fuſe it with a briſk heat. This proceſs gives a button of pure ſilver.

"4. MERCURY may be obtained pure, by diſtilling a mixture of 2 parts cinnabar, and one part iron filings, in an iron retort. The mercury comes over, and the ſulphuret of iron remains; or the oxy-muriat of mercury may be decompoſed by ammonia, and the precipitate heated either by itſelf or mixed with oil.

"5. **Copper** may be diſſolved in muriatic acid, and the copper precipitated by a poliſhed plate of iron: or the black oxide of copper, obtained by decompoſing cuprated ammonia, may be melted with its own weight of pounded glaſs and pitch.

"6. **Iron** can ſcarely be obtained perfectly free from carbonat. The proceſſes deſcribed in a former part of this work furniſh it as pure as it can be procured." See *Chap.* IV. § VI.; **Iron**, § 12; and **Metallurgy**, *Part* III, *Sect.* V.

"7. **Tin** may be obtained pure by ſolution in ſtrong nitric acid: the white oxide of tin is formed, which is inſoluble. Let it be digeſted firſt with muriatic acid, and afterwards with aqua regia. Mix the oxide thus purified with its weight of pitch and a little borax, and melt it in a crucible.

"8. **Lead** may be diſſolved in nitric acid, and precipitated by ſulphat of ſoda; waſh the precipitate, and melt it in a crucible with 2½ times its weight of black flux.

"9. **Nickel** may be obtained pure from kupfer nickel, by roaſting the ore previouſly mixed with charcoal; diſſolving it in nitric acid, evaporating the ſolution to dryneſs, rediſſolving it in water, precipitating by potaſs, and boiling the precipitate with potaſs. The precipitate is then to be edulcorated, diſſolved in acetous acid, the ſolution evaporated to dryneſs, re-diſſolved in water, and precipitated by ammonia in exceſs, which rediſſolves the oxides of cobalt and nickel. By evaporating this ſolution, the cobalt is precipitated, and the ſolution becomes blue. This laſt ſolution evaporated to dryneſs, gives pure oxide of nickel. Form this oxide into a paſte with oil, mix it with 2 or 3 parts of black flux, and put it into a crucible, covering it up with borax and common ſalt. Heat the crucible violently for an hour and a half in a ſmith's forge. A button of pure nickel is obtained.

"10. **Zinc** may be diſſolved in ſulphuric acid, and a plate of zinc allowed to remain for a conſiderable time in the ſolution. It is then to be filtered, and the zinc to be precipitated with ſoda. The precipitate, edulcorated and dried, is to be mixed with half its weight of pure charcoal, and diſtilled in an earthen ware retort. The zinc is found pure in the neck of the retort.

"11. **Antimony** may be diſſolved in nitro-muriatic acid, and precipitated by the affuſion of water. The precipitate is to be mixed with twice its weight of tartar, and fuſed in a crucible. A button of pure antimony is obtained.

"12. **Bismuth** may be diſſolved in nitric acid, and precipitated by water. The edulcorated precipitate, formed into a paſte with oil, and rapidly fuſed with black flux, gives a button of pure biſmuth.

"13. **Tellurium** was obtained pure by Klaproth, by forming its oxide into a paſte with oil, and heating it to redneſs in a retort. The metal was rapidly revived.

"14. **Arsenic**, in the ſtate of white oxide, may be diſſolved in muriatic acid, precipitated by the affuſion of water, rediſſolved and a plate of zinc inſerted into the ſolution, mixing with it at the ſame time a little alcohol. The arſenic is precipitated in the metallic ſtate.

"15. **Cobalt** ores ought to be roaſted for ſome time, adding charcoal or oil, to favour the evaporation of the arſenic. They are then to be diſſolved in nitric acid, the ſolution evaporated to dryneſs and rediſſolved in water. The ſolution is to be precipitated by potaſs, and the precipitate boiled with that alkali. It is then to be edulcorated, diſſolved in acetous acid, the ſolution evaporated to dryneſs, and rediſſolved in water. Precipitate by ammonia, and rediſſolve the precipitate in ammonia. Evaporate the ammoniacal ſolution to dryneſs. Mix the oxide thus obtained with oil and black flux, pour it into a crucible, cover it with borax, and expoſe it for an hour and a half to the heat of a forge. A pure button of cobalt is obtained.

"16. **Manganese**. Digeſt the black oxide of manganeſe repeatedly in nitric acid; then mix it with ſugar; and diſſolve it in nitric acid. Filter the ſolution, precipitate by an alkali, form the white oxide thus obtained into a paſte with oil, and put it into a crucible well lined with charcoal. Expoſe the crucible for an hour to the ſtrongeſt heat of a forge.

"17. **Tungsten** was obtained by Elhuyart, by heating the yellow oxide violently in a crucible lined with charcoal; but this proceſs has not ſucceeded with other chemiſts.

"18. **Molybdenum** may be obtained by forming molybdic acid into a paſte with oil, and heating it violently in a crucible lined with charcoal.

"19. **Uranium** is procured by forming the yellow oxide of that metal into a paſte with oil, drying it in a moderate heat, putting it into a crucible lined with charcoal, with a little lampblack ſtrewed over it. After luting on the cover, it is to be heated, at firſt gently, and then violently, for three quarters of an hour.

"20. **Titanium**, in a very ſmall proportion was obtained in the metallic ſtate, by mixing together 100 parts of the red oxide of the metal, 50 parts of borax, and 5 parts of charcoal, and forming the mixture into a paſte with oil. This paſte was put into a crucible lined with charcoal, and expoſed for an hour and a half to the violent heat of a forge.

"21. **Chromum** was obtained by Vauquelin, in the metallic ſtate, by putting a portion of chromic acid into a charcoal crucible, incloſed in a common crucible lined with charcoal, and expoſing it for an hour to the violent heat of a forge.

"**Columbium**. See *Part* II, *Chap.* VII, *Claſs* IV, *Order* XXII.

Thus we have laid before our readers the neweſt, moſt accurate, and moſt complete Syſtem of **Mineralogy**, yet publiſhed: which we have quoted from the learned and ingenious author Dr **Thomson**, the more largely, that our Syſtem of **Metallurgy** was ſomewhat defective, at leaſt with regard to ſome of the lateſt chemical improvements. *That* Treatiſe, however, as well as the *Firſt Part* of the preſent Treatiſe, will ſtill be found extremely uſeful to ſuch *practical* metallurgiſts and mineralogiſts as are not yet maſters of the modern chemical nomenclature, improvements and diſcoveries But to thoſe who are already partly, and wiſh to be more fully acquainted with theſe, and with all the *miracles* of modern chemiſtry, the 2d and 3d parts of this treatiſe, a well as the hiſtorical introduction, cannot fail t prove highly acceptable.

(1.) **MINERVA**, Athena, or Pallas, in Pagan worſhip, the goddeſs of ſciences and of wiſdom, who ſprung completely armed from Jupiter's brain; and on the day of her nativity it rained gold at Rhodes. She diſputed with Neptune the honour of giving a name to the capital of Cecropia, when they agreed that whoſoever of them ſhould produce what was moſt uſeful to mankind, ſhould have that advantage. Neptune, with a ſtroke of his trident, formed a horſe; and Minerva cauſed an olive to ſpring from the ground, which was judged by the uninamous voice of the gods to be the moſt uſeful, from its being the ſymbol of peace; whereupon ſhe gave her name Athenæ to the city, and became its tutelar goddeſs. Minerva changed Arachne into a ſpider, for pretending to excel her in making tapeſtry. She fought the giants; favoured Cadmus, Ulyſſes, and other hereos; and refuſed to marry Vulcan, chooſing rather to live in a ſtate of celibacy. She alſo deprived Tireſias of ſight, turned Meduſa's locks into ſnakes, and performed ſeveral other exploits. Minerva is uſually repreſented by the poets, painters, and ſculptors, completely armed, with a compoſed but agreeable countenance, bearing a golden breaſt-plate, a ſpear in her right hand, and her ægis or ſhield in the left, on which is repreſented Meduſa's head encircled with ſnakes, and her helmet uſually entwined with olives. Minerva had ſeveral temples both in Greece and Italy. The uſual victim offered her was a white heifer, never yoked. The animals ſacred to her were the cock, the owl, and the baſiliſk.

(2.) Minerva, a town of Naples, in Otranto, 20 miles ESE. of Matera.

Minervæ Arx, Minervæ Castrum, Minervium, or *Templum Minervæ*, a citadel, temple, and town on the Ionian ſea, beyond Hydrus; ſeen at a great way out at ſea; now called Castro, a town of Otranto in Naples. Lon. 19. 25. E. Lat. 46. 8. N.

Minervæ Promontorium, in ancient geography, the ſeat of the Sirens, a promontory of Italy, in the Sinus Paeſtanus, the S. boundary of Campania on the Tuſcan coaſt; ſo called from a temple of Minerva on it: ſituated S. of Surrentum, and therefore called Surrentinum: Now *Capo della Minerva*, on the W. coaſt of Naples, over againſt the iſland Capri.

MINERVAL. *n. ſ.* See the next article.

MINERVALIA, in Roman antiquity, feſtivals celebrated in honour of Minerva; in March the ſcholars had a vacation, and uſually made a preſent to their maſters, called from this feſtival Minerval.

MINERVINO, a town of Naples, in the prov. of Buri, 18 miles N. of Acerenza.

MINERVIUM. See Minervæ Arx.

* **MINEVER.** *n. ſ.* A ſkin with ſpecks of white. *Ainſw.*

MINFELD, a town of Germany, now in th French empire, and dep. of Mont Tonnere, an ci-devant duchy of Deux Ponts; 8 miles S. o Landau, and 7½ ENE. of Wiſſemburg.

MINGALLA, one of the Western Island of Scotland, 9 miles S. of Barra.

MINGAN Islands, a cluſter of iſlands on th S. coaſt of Labrador, ſo named from the largeſt one

* **MINGLE.** *n. ſ.* [from the verb.] Mixture medley; confuſed maſs.—

Trumpeters,
With brazen din blaſt you the city's ear,
Make *mingle* with your rattling tabourines. *Shak*

—Neither can I defend my Spaniſh Fryar; thoug the comical parts are diverting, and the ſeriou moving, yet they are of an unnatural *mingle*. *Dryden's Dufreſnoy.*

(1.) * *To* Mingle. *v. a.* 1. To mix; to join to compound; to unite with ſomething ſo as t make one maſs.—

Sulphurous and nitrous form
They found, they *mingled*, and, with ſubtile art
Concocted, and aduſted. *Milton*
Lament with me: with me your ſorrows join
And *mingle* your united tears with mine! *Walſh*

—Our ſex, our kindred, our houſes, and our ver names, we are ready to *mingle* with ourſelves, an cannot bear to hear others think meanly of them *Watts.* 2. To contaminate; to make of diſſimila parts.—

To confound the race
Of mankind in one root, and Earth with Hell
To *mingle* and involve. *Milton*

—The beſt of us appear contented with a *mingled* imperfect virtue. *Rogers.* 3. To confuſe.—

There *mingle* broils. *Milton*

(2.) * *To* Mingle. *v. n.* To be mixed; to b united with.—

Ourſelf will *mingle* with ſociety,
And play the humble hoſt. *Shak. Macbeth.*

—Alcminus had defiled himſelf wilfully in the times of their *mingling* with the Gentiles. 2 *Mac.* xiv. 13.—

Nor prieſts, nor ſtateſmen,
Could have completed ſuch an ill as that,
If women had not *mingled* in the miſchief. *Rowe.*
She, when ſhe ſaw her ſiſter nymphs, ſuppreſs'd
Her riſing fears, and *mingled* with the reſt. *Addiſ.*

* **MINGLER.** *n. ſ.* [from the verb.] He who mingles.

MINGO, an Indian town on the W. bank of the Ohio, 40 miles SW. of Pittſburg.

MINGOES, a nation of N. American Indians, who inhabit the banks of the S. branch of the Sciola.

MINGOLZHEIM, a town of Germany, in the circle of the Upper Rhine, and biſhopric of Spire, 14 miles SE. of Spire.

MINGRAY, a town of Spain, in Catalonia.

MINGRELIA, a part of Weſtern Georgia, in Aſia, anciently called Colchis; bounded on the E. by Iberia, or *Georgia* properly ſo called; on the W. by the Euxine Sea; on the S. by Armenia, and part of Pontus; and on the N. by Mount Caucaſus. It is watered by many rivers; particularly the Corex, the Hippus, the Cyaneus, the Cariſus, the Phasis, where the Argonauts landed, the Abſarus, the Ciſſa, and the Ophis, all running into the Euxine Sea. The whole kingdom of Colchis was in ancient times very pleaſant and fruitful, as it is ſtill where duly cultivated; abounded in all the neceſſaries of life; and was enriched with many mines of gold, which gave occaſion to the fable of the Golden Fleece and the Argonautic expedition, ſo much celebrated by the ancients. Sir John Chardin tells us, that this country extends above 100 miles in length and 60 in breadth; being not near ſo extenſive as the ancient Colchis, which reached from the frontiers of Iberia or Georgia Proper, W. to the Palus Mæotis: that it is beautifully diverſified with hills, mountains, valleys, woods, and plains, but badly cultivated: that beſides vines, all kinds of fruits found in England, grow wild, but taſteleſs for want of culture: that there are many rivers which riſe in Mount Caucasus, particularly the Phaſis, now called the *Rione:* that the country abounds with beeves, hogs, wild boars, ſtags, partridges, pheaſants, and quails: that falcons, eagles, pelicans, lions, leopards, tigers, wolves, and jackals, breed on Mount Caucaſus, and ſometimes greatly annoy the country: that the people are generally handſome, the men ſtrong and well made, and the women very beautiful; but both ſexes very debauched: that they marry their nieces, aunts, or other near relations, indifferently; and take as many wives and concubines as they pleaſe: that they not only ſell their children, but even murder them, or bury them alive, when they find it difficult to bring them up: that they uſe a ſort of paſte, made of a plant called *gom*, inſtead of bread; but that of the ſuperior ranks conſiſts of wheat, barley, or rice: that the gentry have an abſolute power over their vaſſals, extending to life, liberty, and eſtate: that their arms are bows and arrows, lances, ſabres, and bucklers; that they eat ſitting croſs-legged upon a carpet, like the Perſians; but the poorer ſort upon a mat or bench: that the country is very thin of inhabitants, no leſs than 12,000 being ſold yearly to the Turks and Perſians: that the principal commodities exported from it are, honey, wax, hides, caſtor, ſkins, flax-ſeed, thread, ſilk, and linen cloth; but there are now no gold or ſilver mines, and very little money: that the annual revenue of the viceroy amounts to about 20,000 crowns: that the inhabitants call themſelves *Chriſtians;* but that they and their prieſts are altogether ignorant of the doctrines of Chriſtianity: that their biſhops are rich, have a great number of vaſſals, and are clothed in ſcarlet and velvet: and that their ſervice is according to the rites of the Greek church, with a mixture of Judaiſm and Paganiſm. The cities of moſt note in this country in ancient times were Pityus; Dioſcurias, or Dioſcorias, ſo called from Castor and Pollux, by whom it is ſaid to have been founded, and who in Greek are ſtyled Διοσκουροι, now called Savatapoli; Aea on the Phaſis, ſuppoſed to be Hupolis; *Phaſis*, ſo called from the river; Cyta, at the mouth of the Cyaneus, the birth-place of Medea, called thence, by the poets, *Cytæis;* Saracæ, Zadris, Surium, Madia, and Zoliſſa. As for modern cities, there are none worthy of a deſcription known to Europeans.

MINGRELIANS, the people of Mingrelia.

MING-TSING, a town of China, in Fokien.

MINHO, a great river in Spain, which taking its riſe in Galicia, divides that province from Portugal, and falls into the Atlantic at Caminha.

MINIAC, a town of France, in the dep. of Ille and Vilaine, 7 miles NE. of Dinan, and 9 S. of St. Malo.

MINIATO, St, an epiſcopal town of Etruria, on the Arno, containing 4 churches and 9 convents; 20 miles SW. of Florence. Lon. 10. 45. E. Lat. 43. 40. N.

(1.) * MINIATURE. *n. ſ.* [*miniature*, French; from *minimum*, Latin.] 1. Painting in water-colours with powders tempered with water. A mode of painting almoſt appropriated to ſmall figures. 2. Repreſentation in a ſmall compaſs; repreſentation leſs than the reality.—The water, with twenty bubbles, not content to have the picture of their face in large, would in each of theſe bubbles ſet forth the *miniature* of them. *Sidney.*—If the ladies ſhould once take a liking to ſuch a diminutive race, we ſhould ſee mankind epitomized, and the whole ſpecies in *miniature. Guardian.*

The hidden ways
Of Nature would'ſt thou know? how firſt ſhe frames
All things in *miniature?* thy ſpecular orb
Apply to well diſſected kernels? *Philips.*

3. *Gay* has improperly † made it an adjective.—

Here ſhall the pencil bid its colours flow,
And make a *miniature* creation grow. *Gay.*

(2.) Miniature Painting is a delicate kind of painting, in which the ſubjects are repreſented on a very ſmall ſcale. The effect is uſually produced by little points or dots done on vellum, ivory, or paper, with water-colours.—The word comes from the French *mignature*, from *mignon*, fine, or pretty, on account of its ſmallneſs and delicacy: and it may be ultimately derived from μικρος, *ſmall*, or *minimus*, *leaſt.* Miniature is diſtinguiſhed from other kinds of painting by the ſmallneſs and delicacy of its figures; on which account it requires to be viewed very cloſely.—As many perſons wiſh to amuſe themſelves with painting in miniature, who know little or nothing of the principles of Drawing or Painting, various methods have

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† *We cannot help differing from* Dr Johnson *on this point. Mr* Gay *was in the right, when he uſed* Miniature *as an* adjective. *If it be not an adjective in the expreſſion* Miniature Painting, *what is it?—It is quite abſurd, however common in modern printing, (and even in* Encyclopædias,) *to join two ſuch words into one, and make compounds of them, by a hyphen.* (See Hyphen.) *Mr Gay's expreſſion* "miniature creation" *is not without precedent; as* Scripture hiſtory, Scripture doctrine, *and many ſimilar phraſes.*

been invented, ſuch as copying by ſquares, on oiled paper, &c. Perhaps one of the beſt mechanical inventions to aſſiſt ſuch perſons is the mathematical compaſs called a PENTAGRAPH. This inſtrument is generally made of 10 pieces of wood or braſs in form of rulers, half a quarter of an inch thick, ſix inches broad, and about a foot long. See *Plate* CCXX, *fig.* 9. The little board A is of fir, covered with linen, as the piece to be copied, and the paper or vellum are to be fixed upon it. On this the compaſs muſt be fixed with a pin, by the end of the firſt foot B, deep enough to keep it cloſe, but not ſo deep as to hinder it from turning eaſily. To reduce a figure, place the original on the ſide of the foot C, and the vellum or paper on the ſide of the foot B, removing the vellum or drawing it nearer, as it is wiſhed to reduce or enlarge. A crayon or black lead pencil muſt be put in the foot under which the vellum lies, and a pin blunted in that over the original, with which the traces are to be copied. See DRAWING and PAINTING. For a long time miniature painting was employed upon vellum, paper, &c. but in the preſent improved ſtate of the art, ivory is more uſed than any of theſe materials. Yet ivory being a ſolid ſubſtance, and wanting that abſorbent ſurface which conſtitutes the excellence of vellum, it renders the management of the colours much more difficult and laborious. No tints can be produced by the expeditious mode of *waſhing;* but all muſt be done by dint of labour, by dotting or hatching. Gumming is the next expedient reſorted to, to fix the firſt lays in order to take the ſubſequent colours; and ſo on till the work is finiſhed. In conſequence of theſe difficulties, ſo perplexing to every artiſt, miniature painters have of late confined themſelves chiefly to portrait painting, and the higher branch of hiſtory has been much neglected. This obſtacle to hiſtorical painting in miniature is now however likely to be done away; Mr Einſle, an ingenious artiſt in London, having diſcovered a method of producing, by a chemical proceſs, a white ſkinny ſurface on the ivory, at once ſmooth and abſorbent, ſo as to unite all the qualities required for waſhing and painting upon it, in the ſame manner as on vellum. The colours, when properly ground and mixed up with gum, produce a gloſs without the aſſiſtance of gumming; and admit of being laid on one lay after another to any depth, without removing thoſe underneath. To the ſame artiſt we are indebted for a peculiar preparation of the colours uſually employed in miniature painting; which are both ſuperior to the old, and fewer in number. The chief colours made uſe of for painting in miniature are: Carmine. Venice and Florence lake. Roſe pink. Vermilion. Read lead. Brown red. Red orpiment. Ultramarine. Verditer. Indigo. Gall-ſtone. Yellow ochre. Dutch pink. Gamboge. Naples yellow. Pale maſticot. Deep yellow maſticot. Ivory black. Lamp black. True Indian ink. Biſtre, or wood-ſoot. Raw umber. Burnt umber. Sap-green. Verdigriſe. Flake white. Moſt of theſe colours may eaſily be prepared by attending to the directions given under the article COLOUR-MAKING. But they can all be had ready prepared in complete ſets from the Colour ſhops. Provide an ivory pallet, very ſmooth, as big as your hand; on one ſide of which the colours for th carnation, or naked parts of a picture, are to b arranged thus: In the middle put a great deal o white, pretty largely ſpread; becauſe it is the co lour moſt made uſe of: and upon the edge, fro the left to the right, place the following colou at a little diſtance from the white: Maſtico Dutch-pink; orpiment; yellow ochre; gree compoſed of verditer, Dutch-pink, and white, i equal quantities; blue, made of ultramarine, i digo, and white, to a great degree of paleneſ vermilion; carmine; biſtre, and black. On th other ſide of the pallet, ſpread ſome white in th ſame manner as for the carnation. When dr peries, or the like, are to be painted, place ne the white the colour they are to be made of. T work well in miniature, it muſt be done in a roo that has but one window, with a table and de almoſt as high as the window. The painter mu place himſelf near it, in ſuch a manner, that th light may always come in on the left ſide, a never forward or on the right. To lay a colour o all parts equally ſtrong, as for a ground, make t mixtures in ſhells, and put in enough for the thi to be painted; for if there be not enough, it is great chance but the colour mixed afterwards took dark or too light. Begin by dead colourin *i. e.* by laying the colours on with liberal ſtrokes the pencil, in the ſmootheſt manner, as the painte do in oil; not giving it all the force it is to ha for a finiſhing. Make the lights a little bright and the ſhades leſs dark, than they ought to be; b cauſe in dotting upon them, as muſt be done aft dead colouring, the colour is always fortified, a would at laſt be too dark. There are ſeveral wa of dotting. Some make their dots perfectly roun others a little longiſh; others hatch by little ſtro that croſs each other every way, till the work a pears as if it had been wrought with dots. T laſt method is the beſt, the boldeſt, and the ſoo eſt done: therefore learners ought to uſe it, a to inure themſelves from the firſt to dot in t plump and the ſoft way; that is, where the d are loſt, in a manner, in the ground, and only much appears as is ſufficient to make the wo ſeem dotted. The hard and the dry way is qu the reverſe, and always to be avoided, as it ma the work ſeem rough and uneven. Study likew to loſe and drown the colours one in another, ſo t it may not appear where they disjoin; and to t end, ſoften or allay the touches with colours t partake of both, ſo that it may not appear to the touches which cut and disjoin them. By t word *cut*, is meant what manifeſtly ſeparates a divides, and does not run in and blend itſelf w the neighbouring colours; which is rarely prac ſed but upon the borders of drapery. When t pieces are finiſhed, to heighten them a little, a give them a fine air, give, upon the extremity the lights, ſmall touches with a colour yet light which muſt be gradually loſt with the reſt. Wh the colours are dry upon the pallet or in the ſhe they muſt be diluted with water. And when th want gum, which is ſeen when they eaſily rub the hand or the vellum, they muſt be temper with gum water inſtead of pure water, till th are in condition.

MINIET, the name of a towns in Egypt; v

1. Minie

1. **Miniet Ebn Kasib**, on the W. bank of the Nile.

2. **Miniet Semennud**, 8 miles S. of Manſora.

(1.) * **MINIKEN.** *adj.* Small; diminutive. Uſed in ſlight contempt.—

Thy ſheep be in the corn;
And for one blaſt of thy *minikin* mouth,
Thy ſheep ſhall take no harm. *Shak. K. Lear.*

(2.) * **Minikin.** *n. ſ.* A ſmall ſort of pins.

(1.) * **MINIM.** *n. ſ.* [from *minimus*, Latin.] 1. A ſmall being; a dwarf.—

Not all
Minims of nature; ſome of ſerpent kind,
Wond'rous in length, and corpulence, involv'd
Their ſnaky folds, and added wings. *Milton.*

2. This word is applied, in the northern counties, to a ſmall ſort of fiſh, which they pronounce *mennam.* See **Minnow.**

(2.) **Minim**, in muſic, a note equal to 2 crotchets, or half a ſemibreve. See **Music.**

MINIMS, a religious order in the church of Rome, founded by St Francis de Paula, towards the end of the 15th century. Their habit is a coarſe black woollen ſtuff, with a woollen girdle, of the ſame colours, tied in five knots. They are not permitted to quit their habit and girdle night and day. Formerly they went bare-footed, but are now allowed the uſe of ſhoes.

MINIMUM, in the higher geometry, the leaſt quantity attainable in a given caſe.

* **MINIMUS.** *n. ſ.* [Latin.] A being of the leaſt ſize.—

Get you gone, you dwarf;
You *minimus* of hind'ring knot-graſs made;
You bead, you acorn. *Shak.*

* **MINION.** *n. ſ.* [*mignon*, French.] A favourite; a darling; a low dependant; one who pleaſes rather than benefits. A word of contempt, or of ſlight and familiar kindneſs.—*Minion*, ſaid ſhe; indeed I was a pretty one in thoſe days; I ſee a number of lads that love you. *Sidney.*—They were made great courtiers, and in the way of *minions*, whoſe advancement, the moſt mortal offence to envy, ſtirred up their former friend to overthrow them. *Sidney.*—One, who had been a ſpecial *minion* of Andromana's, hated us for having diſpoſſeſſed him of her heart. *Sidney.*—

Go rate thy *minions.* *Shak. Henry* VI.

His company muſt do his *minions* grace. *Shak.*—Edward ſent one army into Ireland; not for conqueſt, but to guard the perſon of his *minion* Piers Gaveſton. *Davies.*—If a man ſhould launch into the hiſtory of human nature, we ſhould find the very *minions* of princes linked in conſpiracies againſt their maſter. *L'Eſtrange.*—

The drowſy tyrant by his *minions* led,
To regal rage devotes ſome patriot's head. *Swift.*

MINJON. See **Mignon.**

* **MINIOUS.** *adj.* [from *minium*, Lat.] Of the colour of red or vermilion.—Some conceive, that the red Sea receiveth a red and *minious* tincture from ſprings that fall into it. *Brown.*

* *To* **MINISH.** *v. a.* [from *diminiſh*; *minus*, Latin.] To leſſen; to lop; to impair.—Ye ſhall not *miniſh* ought from your bricks of your daily taſk. *Exod.* v. 19.—They are *miniſhed* and brought low through oppreſſion. *Pſal.* cvii. 39.—Another was to bring in the ſilver of the realm to the mint, in making all clipt, *miniſhed*, or impaired coins of ſilver, not to be current in payments. *Bacon's Henry* VII.

(1.) **MINISINK**, a town of New Jerſey, on the W. bank of the Delaware, 5 miles below Montague, and 57 NW. of Brunſwick.

(2.) **Minisink**, a townſhip of New York, bounded on the E. by Wallkill, and S. by New Jerſey; containing 2164 citizens, 320 electors, and 51 ſlaves, in 1797.

MINISKA, a river of Sileſia.

(1.) * **MINISTER.** *n. ſ.* [*miniſter*, Lat. *miniſtre*, French.] 1. An agent; one who is employed to any end; one who acts not by any inherent authority, but under another.—You, whom virtue hath made the princeſs of felicity, be not the *miniſter* of ruin. *Sidney.*—

But yet I call you ſervile *miniſters*,
That have with two pernicious daughters join'd
Your high-engender'd battles. *Shak.*

Th' infernal *miniſter* advanc'd,
Seiz'd the due victim. *Dryden.*

This ſovereign, by his arbitrary nod,
Reſtrains or ſends his *miniſters* abroad. *Blackm.*

2. One who is employed in the adminiſtration of government.—Kings muſt be anſwerable to God, but the *miniſters* to kings, whoſe eyes, ears, and hands they are, muſt be anſwerable to God and man. *Bacon.* 3. One who ſerves at the altar; one who performs ſacerdotal functions.—Epaphras a faithful *miniſter* of Chriſt. *Col.* i. 7.—The *miniſters* are always preaching, and the governors putting forth edicts againſt dancing and gaming. *Addiſon.*—The *miniſters* of the goſpel are eſpecially required to ſhine as lights in the world. *Rogers.*—Callidus contents himſelf with thinking, that he has always been civil to the *miniſter* of his pariſh, and very often given ſomething to the charity ſchools. *Law.* 4. A delegate; an official.—

If wrongfully
Let God revenge; for I may never lift
An angry arm againſt his *miniſter.* *Shak.*

5. An agent from a foreign power without the dignity of an ambaſſador.

(2.) *A* **Minister**, in the Preſbyterian eccleſiaſtical polity, is a clergyman, who preaches, performs religious worſhip in public, adminiſters the ſacraments, &c.

(3.) **Minister, Foreign**, (§ 1. *def.* 5.) is a perſon ſent into a foreign country, to manage the affairs of his province, or of the ſtate to which he belongs. Of theſe there are two kinds: thoſe of the firſt rank are **ambassadors** and **envoys** extraordinary, who repreſent the perſons of their ſovereigns; the miniſters of the ſecond rank are the ordinary reſidents.

(4.) **Minister of State.** (§ 1, *def.* 1.) See **Privy**, N° 4. (**Council.**)

(1.) * *To* **Minister.** *v. a.* [*miniſtro*, Lat.] To give; to ſupply; to afford.—All the cuſtoms of the Iriſh would *miniſter* occaſion of a moſt ample diſcourſe of the original and antiquity of that people. *Spenſer.*—Now he that *miniſtereth* ſeed to the ſower, both *miniſter* bread for your food and multiply your ſeed ſown. 2 *Cor.* ix.—

The wounded patient bears
The artiſt's hand that *miniſters* the cure.
Otway.

(2.) * *To* Miniſter. *v. n.* 1. To attend; to ſerve in any office.—

At table Eve
Miniſter'd naked, and their flowing cups
With pleaſant liquors crown'd. *Milton.*

2. To give medicines.—

Can'ſt thou not *miniſter* to a mind diſeas'd,
Pluck from the memory a rooted ſorrow? *Macb.*

3. To give ſupplies of things needful; to give aſſiſtance; to contribute; to afford.—Others *miniſtered* unto him of their ſubſtance. *Luke.*—He who has a ſoul wholly void of gratitude, ſhould ſet his ſoul to learn of his body; for all the parts of that *miniſter* to one another. *South.*—There is no truth which a man may more evidently make out than the exiſtence of a God; yet he that ſhall content himſelf with things as they *miniſter* to our pleaſures and paſſions, and not make enquiry a little farther into their cauſes and ends, may live long without any notion of ſuch a being. *Locke.*—Thoſe good men, who take ſuch pleaſure in relieving the miſerable, for Chriſt's ſake, would not have been leſs forward to *miniſter* to Chriſt himſelf. *Atterbury.*—Faſting is not abſolutely good, but relatively, and as it *miniſters* to other virtues. *Smalridge's Sermons.* 4. To attend on the ſervice of God.—Let us wait on our *miniſtring. Rom.* xii. 7.

* MINISTERIAL. *adj* [from *miniſter.*] 1. Attendant; acting at command.—Underſtanding is in a man; courage and vivacity in the lion; ſervice, and *miniſterial* officiouſneſs, in the ox. *Brown.*

From eſſences unſeen, celeſtial names,
Enlight'ning ſpirit, and *miniſterial* flames. *Prior.*

2. Acting under ſuperior authority.—For the *miniſterial* officers in court there muſt be an eye unto them. *Bacon.*—Abſtinence, the apoſtle determines, is of no other real value in religion, than as a *miniſterial* cauſe of moral effects. 3. Sacerdotal; belonging to the eccleſiaſticks or their office.—Theſe ſpeeches of Jerom and Chryſoſtom plainly allude unto ſuch *miniſterial* garments as were then in uſe. *Hooker.* 4. Pertaining to miniſters of ſtate, or perſons in ſubordinate authority.

MINISTERIALIST. *n. ſ.* in political controverſy, an adherent, or writer in favour of adminiſtration.

* MINISTERIALLY. *adv.* In a miniſterial manner.—The Son, out of voluntary condeſcenſion, ſubmits to act *miniſterially*, or in capacity of mediator. *Waterland.*

* MINISTERY. *n. ſ.* [*miniſterium*, Lat.] Office; ſervice. This word is now contracted to *miniſtry*, but uſed by *Milton* as four ſyllables.—They that will have their chamber filled with a good ſcent, make ſome odoriferous water be blown about it by their ſervants mouths, that are dextrous in that *miniſtry. Digby.*—

This temple to frequent
With *miniſteries* due, and ſolemn rites. *Milton.*

* MINISTRAL. *adj.* [from *miniſter.*] Pertaining to a miniſter.

* MINISTRANT. *adj.* [from *miniſter.*] Attendant; acting at command. *Pope* accents it, not according to analogy, on the ſecond ſyllable.—

Him thrones, and pow'rs,
Princedoms, and dominations *miniſtrant*,
Accompany'd to heav'n gate. *Milt. Par. Loſt.*
Miniſtrant to their queen with buſy care,
Four faithful handmaids the ſoft rites prepar
Po

* MINISTRATION. *n. ſ.* [from *miniſtro*, La 1. Agency; intervention; office of an agent de gated or commiſſioned by another.—God, by *miniſtration* to me, intends to do him a favo *Taylor.*—I think they are moſt ordinarily done the *miniſtration* of angels. *Hale's Origin of Ma* 2. Service; office; eccleſiaſtical function.—T profeſſion of a clergyman is an holy profeſſi becauſe it is a *miniſtration* in holy things. *Law.* If the preſent *miniſtration* be more glorious th the former, the miniſter is more holy. *Atterbu*

* MINISTRY. *n. ſ.* [contracted from *miniſte* *miniſterium*, Lat.] 1. Office; ſervice.—So far is indiſtinction of all perſons, and, by conſequen an anarchy of all things, from being agreeeble the will of God declared in his great houſeho the world, and eſpecially in all the *miniſtries* of proper houſehold the church, that there was ne yet any time, I believe, ſince it was a numb when ſome of its members were not more ſac than others. *Spratt's Sermons.* 2. Office of ſet apart to preach; eccleſiaſtical function.—

Their *miniſtry* perform'd, and race well r
They die. *Milton's Par. L*

—Saint Paul was miraculouſly called to the *mi* *try* of the goſpel. *Locke.* 3. Agency; interpoſit —The natural world he made after a miracul manner; but directs the affairs of it ever ſince ſtanding rules, and the ordinary *miniſtry* of ſec cauſes. *Atterbury.*—

To all but thee in fits he ſeem'd to go,
And 'twas my *miniſtry* to deal the blow. *Par*

—The poets introduc'd the *miniſtry* of the g *Bentley.* 4. Buſineſs.—

He ſafe from loud alarms,
Abhorr'd the wicked *miniſtry* of arms. *Dry*

5. Perſons employed in the public affairs o ſtate.—I converſe in full freedom with many c ſiderable men of both parties; and if not an eq number, it is purely accidental, as happening have made acquaintance at court more under *miniſtry* than another. *Swift.*

MINITOBA, a lake of Canada, 100 miles lo and from 10 to 15 broad. Lon. 100. 20. W. 50. 40. N.

(1.) * MINIUM. *n. ſ.* Melt lead in a br earthen veſſel unglazed, and ſtir it continually it be calcined into a grey powder; this is c the calx of lead; continue the fire, ſtirring the ſame manner, and it becomes yellow; in ſtate it is uſed in painting, and is called maſſi or maſſicot; after this put it into a reverberat furnace, and it will calcine further, and beco of a fine red, which is the common *minium* or lead: among the ancients *minium* was the na for cinnabar: the modern *minium* is uſed exten ly, and is excellent in cleanſing and healing old cer's. *Hill's Mat. Med.*

(2.) Minium, or Red lead, is an oxide of of a vivid red colour, which it acquires by a calcination and reverberation. See Chemist *Index.* The minium in commerce is ch brought from Holland, where large quantitie it are manufactured. The method in which nium is made in large quantities with us is th They firſt burn lead in a furnace into a kind lithar litharge, by continually ſtirring it while melted with an iron rake; this they afterwards grind with two pair of ſtones, which deliver it from one to another, the firſt pair grinding it coarſer, the ſecond finer; theſe are worked by means of a mill which moves ſix pair of them at once. When thus reduced to a fine powder, it is waſhed and then put into a furnace, and is burnt with a reverberatory fire for two or three days, all the while they continue ſtirring it with a large iron rake, hung on a ſwivel or iron hook; and toward the end of the time they watch its being of the right colour. When this is doing, the fire muſt not be carried beyond a certain degree, leſt the matter clot and run together. The proceſs by which minium is prepared is deſcribed in the following manner by M. Jars, in the *Mem. de l' Acad. Royal*, 1770. The furnace is of the reverberatory kind, with two fire-places at the ends; each fire-place being ſeparated from the area, or body of the furnace, by a wall 12 inches high. The fire-places are 15 inches broad, and their length is equal to the breadth of the whole furnace, which is about 8 or 9 feet. The length of the area from one place to the other is 9 or 10 feet. The quantity of lead uſed in one operation is about 1500 lb. of which nine parts are lead obtained from furnaces where the ore is ſmelted, and one part is lead extracted from the ſcoria which is formed in ſmelting the ore. This latter kind is ſaid to be neceſſary, as the former could not alone be reduced into powder. All the lead is at once put into the area, the bottom of which is level. The calx, as faſt as it is formed, is drawn to one ſide, by a rake ſuſpended by a chain before the mouth of the furnace. In 4 or 5 hours the whole quantity of the lead is calcined, or, if any pieces remain uncalcined, they are ſeparated, and kept for the next operation. The heat employed is that of a cherry red, and the fire-places and mouth are kept open, that the air may accelerate the calcination. The power or calx is to be frequently ſtirred to prevent its concreting; and when this operation has been continued about 24 hours, the matter is taken out of the furnace, and laid on a flat pavement. Then cold water is thrown on it, to give it weight, as the workmen ſay; but rather (as Mr Jars thinks) to make it friable. It is then to be ground in a mill, and the finer part is ſeparated by waſhing, while the coarſer part, reſerved for ſome following operation, is to be placed at the mouth of the furnace in order to retain the melted lead. The fine powder, which is now of a yellow colour, is again put into the ſame or a ſimilar furnace, and expoſed to a very moderate fire, from 36 to 48 hours; during which time, it is ſtirred frequently to prevent its concreting; and the powder gradually acquires its proper red colour. The minium is then to be taken out of the furnace, cooled, and ſifted through an iron ſieve placed in a caſk. The bright colour of minium might render it valuable in painting, if it could ſtand with certainty in either oil or water. But as it is ſubject to become black, it cannot be ſafely truſted, except in hard varniſhes; and is, therefore, ſeldom uſed in oil, or even in water, unleſs for very groſs purpoſes, or as a ground for vermilion. The goodneſs of minium may be diſtinguiſhed by the brightneſs of its colour; and the adulteration to which it is liable may be detected by putting an ounce of it into a crucible with an equal quantity of charcoal duſt, well mixed together, and placing the crucible in a common fire ſufficient to melt lead, which is to be covered with another ſmall crucible inverted into it. When it has been continued for ſome time on the fire, take it out and ſtrike it againſt the ground. The minium will thus be reduced to its metallic ſtate; and its diminiſhed weight, when freed from the charcoal duſt, and cold, will indicate the proportion of adulterated matter. Minium is alſo uſed as a flux in forming the enamel for grounds, and in glazing, &c. It is now called *Red Oxide.*

(3.) **Minium**, in medicine, is uſed as an external application. It obtunds the acrimony of the humours, allays inflammations, and is excellent in the cleanſing and healing of old ulcers. It is uſed on theſe occaſions in many of the plaſters and ointments of the ſhops. It was an ingredient in the officinal compoſition called *emplaſtrum de minio*, employed as a deſiccative and cicatrizer; but now diſuſed for that made in the ſame manner with litharge, becauſe it does not ſtick ſo well, and is more difficult of preparation.

MINNIE, a river of Lithuania.

(1.) MINNIGAFF, or **Monnigaff**, [*Gael.* i. e. a *ſtony moor*,] a pariſh of Scotland, in Kircudbrightſhire, 24 miles long and 12 broad. The ſurface is rugged, as the pariſh conſiſts moſtly of rocky hills, ſome of them very high, and abounding with lead ore; yet the climate in the low grounds is mild and ſalubrious; but the ſoil is barren, except ſome ſmall ſtripes on the banks of the Cree, which produce good crops of oats, wheat, rye, barley, and potatoes, ſufficient for the inhabitants. But the hills feed about 30,000 ſheep, beſides goats, horſes, and black cattle; and abound with valuable woods. The population in 1792, was 1420; increaſe 211 ſince 1755, and no leſs than 592, ſince 1748; chiefly owing to the mines. A native was alive in 1792, aged 118. The ſhepherds and peaſants ſpend much time in reading, and are well informed. The farmers are wealthy and intelligent.

(2.) **Minnigaff**, a village in the above pariſh, 15 miles SW. of New Galloway.

MINNIN, a ſtringed inſtrument of muſic among the ancient Hebrews, having 3 or 4 chords to it. See *Plate* CCXV. *fig.* 9. There is reaſon to queſtion the antiquity of this inſtrument; both becauſe it requires a hair-bow, which was a kind of plectrum not known to the ancients, and becauſe it ſo much reſembles the modern viol. Kircher took the figures of this, the machul, chinnor, and pſaltery, from an old book in the Vatican library.

MINNITH. See **Mennith.**

* MINNOCK. *n.ſ.* Of this word I know not the preciſe meaning. It is not unlikely that *minnock* and *minx* are originally the ſame word.—

An aſs's nole I fix'd on his head;
Anon his Thiſbe muſt be anſwered,
And forth my *minnock* comes. *Shak.*

(1.) * MINNOW. *n.ſ.* [*menue*, Fr.] A very ſmall fiſh; a pink: a corruption of *minim*, which ſee.—

Hear you this, triton of the *minnows?* *Shak.*

—The *minnow*, when he is perfectly ſeaſon, and not ſick, which is only preſently after ſpawning, hath a kind of dappled or waved colour, like a panther, on his ſides, inclining to a greeniſh and ſky colour, his belly being milk-white, and his back almoſt black or blackiſh: he is a ſharp biter at a ſmall worm in hot weather, and in the Spring they make excellent *minnow* tanſies; being waſhed well in ſalt, and their heads and tails cut off, and their guts taken out, being fried with yolks of eggs, primroſes, and tanſy. *Walton's Angler.*—The nimble turning of the *minnow* is the perfection of *minnow* fiſhing. *Walton's Angler.*

(2.) *The* Minnow is a ſpecies of Cyprinus.

MINOA, a town of Perſia, 10 miles from Aſſeen, and 17 from Gombroom; famous for its hot and cold natural baths, which cure rheumatiſm, ſcrophula, &c. by bathing.

MINOLA, a town of Ireland, in Mayo

MINONG, an iſland of Canada, in Lake Superior, 30 miles long and 10 broad. Lon. 89. 0. W. Lat. 48. 0. N.

(1.) * **MINOR.** *adj.* [Latin.] 1. Petty: inconſiderable.—If there are petty errours and *minor* lapſes, not conſiderably injurious to faith, yet it is not ſafe to contemn inferiour falſities. *Brown.* 2. Leſs; ſmaller.—They altered this cuſtom from caſes of high concernment to the moſt trivial debates, the *minor* part ordinarily entering their proteſt. *Clarendon.*—The difference of a third part is ſo large and collective an account is not ſtrange, if we conſider how differently they are ſet in *minor* and leſs miſtakeable numbers. *Brown.*

(2.) * Minor. *n. ſ.* One under age; one whoſe youth cannot allow him to manage his own affairs.—King Richard II. the firſt ten years of his reign, was a *minor*. *Davies.* He and his muſe might be *minors*, but the libertines are full grown. *Collier's View of the Stage.*

Long as the year's dull circle ſeems to run,
When the briſk *minor* pants for twenty-one. *Pope.*

—The nobleſt blood of England having been ſhed in the grand rebellion, many great families became extinct, or ſupported only by *minors*. *Swift.*—A *minor* or infant cannot be ſaid to be contumacious. *Ayliff.* 2. The ſecond or particular propoſition in the ſyllogiſm.—The ſecond or *minor* propoſition was, that this kingdom hath cauſe of juſt fear of overthrow from Spain. *Bacon.*—He ſuppoſed that a philoſopher's brain was like a foreſt, where ideas are ranged like animals of ſeveral kinds; that the major is the male, the *minor* the female, which copulate by the middle term, and engender the concluſion. *Arbuthnot.*

(3.) Minor, in law, denotes a perſon under age; or who, by the laws of the country, is not arrived at the power of adminiſtering his own affairs, or the poſſeſſion of his eſtate. Among us, a perſon is a minor till the age of 21; before which time his acts are invalid. See Age, Infant, and Major, § 4. It is a maxim in the common law, that in the king there is no minority, and therefore he hath no legal guardian; and his royal grants and aſſents to acts of parliament are good, though he has not, in his natural capacity, attained the legal age of 21. It is alſo provided by the cuſtom and law of parliament, that no one ſhall ſit or vote in either houſe, unleſs he be 21 years of age. This is expreſsly decla by ſtat. 7 and 8 Will. III. cap. 25. with regard the houſe of commons.

(4.) Minor, in logic, is the ſecond propoſit of a formal or regular ſyllogiſm, called alſo *aſſumption.*

(5.) Minor, in muſic, is applied to certain c cords, which differ from or are lower than oth of the ſame denomination, by a leſſer ſemitone four commas. Thus we ſay, a third minor leſſer third, or a ſixth major and minor. C cords that admit of major and minor, *i. e.* grea and leſs, are ſaid to be imperfect concords. Major, § 6.

(6.) Minors, Friars Minor, or Minorit appellations which the Franciſcans aſſume. Franciscans. There is alſo an order of *Re lar Minors* at Naples, which was eſtabliſhed 1588, and confirmed by Sixtus V.

* *To* **MINORATE.** *v. a.* [from *minor*, Lati To leſſen; to diminiſh. A word not yet adm ted into the language.—This it doth not only the advantageous aſſiſtance of a tube, but by ſhe ing in what degrees diſtance *minorates* the obje *Glanville's.*

* **MINORATION.** *n. ſ.* [from *minorate.*] T act of leſſening; diminution; decreaſe. A wo not admitted.—Bodies emit virtue without aba ment of weight, as is moſt evident in the loa ſtone, whoſe efficiencies are communicable wi out a *minoration* of gravity. *Brown.*—We ho the mercies of God will conſider our degenerat integrity unto ſome *minoration* of our offenc *Brown.*

MINORBINO, a town and biſhop's ſee Naples, in Bari, 26 miles N. of Cirenza, 28 WN of Matera, and 85 E. of Naples. Lon. 16. 19. Lat. 41. 8. N.

MINORCA, an iſland of the Mediterrane ſituated between 39° and 40° N. Lat. and near of Lon. E. It is about 33 miles long from NW. SE. in breadth from 8 to 12, but in general abo 10 miles; ſo that in ſize it may nearly equal t county of Huntingdon or Bedford. The form very irregular; and the coaſts are much indent by the ſea, which forms a great number of lit creeks and inlets, ſome of which might be ve advantageous. This iſland is one of thoſe call by the ancient Romans Baleares, which are from the dexterity of the inhabitants in uſing t ſling. It fell under the power of the Roman and afterwards of the northern barbarians wh deſtroyed that empire. From them it was tak by the Arabs, who were ſubdued by the king Majorca, and he by the king of Spain. Th Engliſh ſubdued it in 1708, and the French in th German war; but it was reſtored to Britain the treaty of Paris in 1763. The air is muc more clear and pure than in Britain; being ſe dom darkened with thick fogs: yet the low va leys are not free from miſts and unwholeſome v pours; and in windy weather the ſpray of th ſea is driven over the whole iſland. The who coaſt lies low; but there are a few hills near th centre, of which the moſt conſiderable, name Toro, may be ſeen 12 or 14 leagues diſtant. Th ſurface of the iſland is rough and unequal; an in many places divided by long narrow vales of

conſiderab

conſiderable depth, called *barancoes* by the natives. They begin in the middle of the iſland, and after ſeveral windings terminate at the ſea. The SW. ſide is more plain and regular than towards the NW. where the hills are higher, with low marſhy valleys betwixt them, the ſoil leſs fruitful, and the whole tract unhealthy. Near the towns and villages the fields are well cultivated, and incloſed with ſtone walls; but the reſt are moſtly rocky, or covered with woods. There are ſome pools of ſtanding water, but very few ſprings, which is the greateſt defect about the iſland, as the inhabitants have ſcarcely any wholeſome water excepting what is ſaved from the clouds. The ſoil is light, thin, and very ſtony, with a good deal of ſea-ſalt, and in ſome places of calcareous nitre intermixed. In moſt places there is ſo little earth, that the iſland appears to be but one large irregular rock covered here and there with mould, and an infinite variety of ſtones. Notwithſtanding this, however, it is not only extremely proper for vineyards, but produces more wheat and barley than could at firſt ſight be imagined. The fields commonly lie fallow for two years, and are ſown the third. The whole harveſt is commonly got in by midſummer. The grain is not threſhed, but trodden out on a broad piece of rock by oxen and aſſes. The natives are commonly lean, thin, and well-built, of a middle ſtature, and olive complexion; but the ſlighteſt cauſe provokes them to anger, and they ſeem to be incapable of forgiving an injury. Hence quarrels break out daily, and family diſputes are tranſmitted from father to ſon. Both ſexes are extremely amorous: they are often betrothed while children, and marry at the age of 14. The women have eaſy labours, and commonly return in a few days to their uſual domeſtic buſineſs; but, leſt the family ſhould become too numerous, the poorer ſort keep their children at the breaſt for two or three years. Bread of the beſt wheat flour, rice, pulſe, vermicelli, herbs, roots, ſummer fruits, pickled olives, and pods of the Guinea pepper, make up almoſt the whole of their diet; ſo that ſcarce one 5th of it is animal food, and of this fiſh make the greateſt part. Moſt of their diſhes are high-ſeaſoned with pepper, cloves, cinnamon, and other ſpices; and they eat a great deal of oil. A ſlice of bread ſoaked in boiled water, with a little oil and ſalt, is the common breakfaſt of the peaſants, named OLIAGUA. Their ordinary meals are very frugal, but on ſolemn occaſions their entertainments are to the laſt degree profuſe and extravagant. The MINORQUINS are accuſed of prodigious indolence in the way of buſineſs, and neglect of their natural advantages. The hills abound with iron, copper, and lead ores, of none of which any uſe hath been made except the laſt. There are few exports of any account, and they are obliged to their neighbours for near one 3d of their corn, all their oil, and a variety of other articles. They make a ſort of cheeſe, little liked by the Engliſh, which ſells in Italy at a very great price: This may amount to 800 l. *per annum*. The wool they ſend abroad may produce 900 l. more. Some wine is exported; and, if we add that of the home conſumption, it may be eſtimated at 1600 l a-year. In honey, wax, and ſalt, their yearly exports may be about 400 l. and the ſum total of their exports, about 1800 l. Sterling *per annum*. The iſland is divided into 4 *terminos*, or countries, of which there were anciently 5. The termino of *Ciudadella*, at the NW. extremity of the iſland, is ſo ſtyled from Ciudadella, which was once the capital. This city makes a venerable appearance even in its preſent ſtate of decay, having in it a large Gothic cathedral, ſome other churches and convents, the governor's palace, an exchange, and about ſix hundred houſes; which, before the ſeat of government and the courts of juſtice were removed to Mahon, were fully inhabited; and there are ſtill more gentlemen's families here than in all the reſt of the iſland. It hath a port commodious enough for the veſſels employed in the trade of this country. The termino of *Fererias* is the next, a narrow ſlip reaching acroſs from ſea to ſea, and the country little cultivated; it is therefore united to MERCANDAL. In this laſt termino ſtands Mount TORO in the very centre of the iſle, and the higheſt mountain in it; on the ſummit of which there is a convent, where even in the hotteſt months the monks enjoy a cool air, and at all times a moſt delightful proſpect. About 6 miles N. from Mount Toro ſtands a caſtle that covers Port Fornelles, which is a very ſpacious harbour on the E. ſide of the iſland. There are in it ſhoals and foul ground, which, to thoſe who are unacquainted with them, render it difficult and dangerous; yet the packets bound from Mahon to Marſeilles frequently take ſhelter therein, and even large ſhips and men of war frequent it. Near this lies another harbour called *Adaia*, which runs far into the land; but being reputed unſafe, is now little uſed. The country about it is, however, the pleaſanteſt and wholeſomeſt ſpot in the iſland, and almoſt the only one plentifully ſupplied with excellent ſpring water; ſo that the richeſt and fineſt fruits grow here in the higheſt perfection. *Alaior* is the next termino, in which there is nothing remarkable but the capital of the ſame name, well ſituated on an eminence, in a pleaſant and tolerably cultivated country. The termino of MAHON, at the SE. end of the iſland, is the moſt conſiderable of them all, containing about 60,000 Engliſh acres, and nearly one half of the inhabitants of Minorca. The town of MAHON ſtands on an eminence on the W. ſide of the harbour, and has a large church, 3 convents, the governor's palace, and other public edifices. It is large, but the ſtreets are winding, narrow, and ill-paved. The fort of St Philip ſtands near the entrance of the harbour, which it covers, is very ſpacious, of great ſtrength, with ſubterranean works to protect the garriſon from bombs, large magazines, and whatever elſe is neceſſary to render it a complete fortification, and hath a numerous and well-diſpoſed artillery. Minorca was taken by the Spaniards during the American war, was retaken by Great Britain in 1798, and reſtored at the general peace in 1802. It is now (1811), in conſequence of the Spaniſh reſiſtance againſt the uſurpation of Buonaparte, under Britiſh protection.

MINORI, a town and biſhop's ſee of Naples, in Pincipato Citra on the Gulf of Salerno; 3 miles NE. of Amalfi, and 7 SW. of Salerno.

MINORITES, See FRANCISCANS and MINOR, § 6.

* MINORITY. *n. ſ.* [*minorité*, Fr. from *minor*, Lat.] 1. The ſtate of being under age.—I mov'd the king, my maſter, to ſpeak in the behalf of my daughter, in the *minority* of them both. *Shak.*—

He is young, and his *minority*
Is put into the truſt of Richard Gloſter. *Shak.*

—A queſtion was raiſed, whether, during the king's *minority*, ſuch alterations might be made or no. *Hayward.*—Henry VIII. doubting he might die in the *minority* of his ſon, procured an act to paſs, that no ſtatute made during the *minority* of the king ſhould bind him or his ſucceſſors. *Bacon.*—If there be evidence, that it is not many ages ſince nature was in her *minority*, this may be taken for a good proof that ſhe is not eternal. *Burnet.*—Their counſels are warlike and ambitious, though ſomething tempered by the *minority* of their king. *Temple.* 2. The ſtate of being leſs.—From this narrow time of geſtation may enſue a *minority*, or ſmallneſs in the excluſion. *Brown.* 3. The ſmaller number: as, the *minority* held for that queſtion in oppoſition to the majority.

MINOROSA, or MANRESA. See MANRESA.

MINORQUINS. See MINORCA.

MINOS I. in fabulous hiſtory, king of Crete, ſon of Jupiter and Europa. He flouriſhed about A. A. C. 1432. He gave laws to his ſubjects, which remained in force in the age of the philoſopher Plato, about 1000 years after his death. His juſtice and moderation procured him the titles of the favourite of the gods, the confident of Jupiter, and the wiſe legiſlator in every city of Greece; and, according to the poets, he was rewarded for his equity after death with the office of ſupreme judge in the infernal regions. In this character he is repreſented ſitting in the ſhades and holding a ſceptre in his hand. The dead plead their cauſes before him; and the impartial judge ſhakes the fatal urn, which is filled with the deſtinies of mankind. He married Ithona, by whom he had Lycaſtes, the father of Minos II.

MINOS II. the grand-ſon of Minos I. and king of Crete, married Paſiphae, the daughter of Apollo and Perſeis, by whom he had many children. He increaſed his dominions by the conqueſt of the neighbouring iſlands; but ſhowed himſelf cruel in the war againſt the Athenians, who had put to death his ſon Androgeus. He took Megara by the treachery of Scylla; and obliged the vanquiſhed to ſend annually to Crete 7 choſen boys and 7 virigins to be devoured by the MINOTAUR. This bloody tribute was aboliſhed when THESEUS deſtroyed the monſter. When DÆDALUS, whoſe induſtry and invention had fabricated the labyrinth, and whoſe imprudence in aſſiſting Paſiphæ in the gratification of her unnatural deſires, had offended Minos, fled with artificial wings from the place of his confinement, and arrived ſafe in Sicily, Minos purſued him, reſolved to puniſh his infidelity. Cocalus, king of Sicily, who had hoſpitably received Dædalus, entertained his royal gueſt with diſſembled friendſhip; and to preſerve an artiſt whoſe ingenuity and abilities he ſo well knew, he put Minos to dea
about 35 years before the Trojan war. He
father of Androgeus, Glaucus, Deucalion, Ph
dra and Ariadne. Many authors have confoun
the two Minoſes; but Homer, Plutarch, and D
dorus, prove plainly that they were two differ
perſons.

(1.) MINOT, Laurence, an ancient Eng
poet, who died about 1352. Mr Tyrwhit di
vered his poems in the Cottonian Library,
they were publiſhed in 8vo 1795.

(2.) MINOT, a town of France, in the dep.
Cote d'Or, 18 miles SE. of Chatillon.

(1.) * MINOTAUR. *n. ſ.* [*minotaure*, Fr. *mi*
and *taurus*.] A monſter invented by the po
half man and half bull, kept in Dædalus's la
rinth.—

Thou may'ſt not wander in that labyrinth
There *minotaurs*, and ugly treaſon lurks. *Sh*

(2.) *The* MINOTAUR in fabulous hiſtory,
the fruit of Paſipae's amour with a bull. Mi
having refuſed to ſacrifice a white bull to N
tune, which he had received from the god
that purpuſe, Neptune, in revenge, made P
phae the wife of Minos enamoured of this
bull. Dædalus proſtituted his talents ſubſervi
to the queen's unnatural deſires; and by
means, Paſiphae's horrible paſſions were gratifi
and the Minotaur came into the world. Mi
confined in the labyrinth this monſter, where
devoured the young men and maidens annua
exacted from the Athenians. Theſeus delive
his country from this barbarous tribute, whe
had fallen to his lot to be devoured; and
means of Ariadne, the daughter of Minos,
ſtroyed the monſter, and eſcaped from the wi
ings of the labyrinth.—The fable of the Mi
taur has been thus explained:—Paſiphae was
amoured of one of her huſband's courtiers cal
Ταυρος, or *Tauros*, (which in Greek as well as L
tin ſignifies *a bull*;) and Dædalus favoured
paſſion of the queen, by allowing his houſe
become the retreat of the two lovers. Paſiph
brought forth twins, one of whom greatly
ſembled Minos and the other Taurus; when
originated the name, and the fable of the Mi
taur.

MINSFELDEN, or MENSFELDEN, a town
Germany in the circle of the Lower Rhine, a
late archbiſhopric of Treves; 15 miles ESE.
Montabaur, and 25 E. of Coblentz.

(1.) MINSK, or } a palatinate of Ruſſian Lith
(1.) MINSKI, } ania, containing fertile plai
and extenſive foreſts. Bee-huſbandry is mu
cultivated, and great quantities of honey exporte
Jews are numerous and rich.

(2.) MINSKI, the capital of the above pal
nate, has two citadels, and is ſeated on the S
lock 55 miles SE. of Wilna, and 250 NE. of W
ſaw. Lon. 26. 30. E. Lat. 53. 45. N.

MINSTIP, a town of Yorkſhire, near Borou
bridge.

(1.) * MINSTER. *n. ſ.* [*minſtere*, Sax.] A m
naſtery; an eccleſiaſtical fraternity; a cathedr
church. The word is yet retained at York a
Litchfield.

(2.) MINSTER, a town of Bavaria, 7 miles N
of Brapau, and 11 S. of Vitzhofen.

(3—

(3—5.) MINSTER, 3 Engliſh villages; in Cornwall, Kent, and Sheppy iſle,

(1.) * MINSTREL. *n. ſ.* [*meneſtril*, Spaniſh; *meneſtrallus*, low Latin.] A muſician; one who plays upon inſtruments.

Hark how the *minſtrels* 'gin to ſhrill aloud
Their merry muſic. *Spenſer.*

I will give you the *minſtrel.* *Shak.*

I to the vulgar am become a jeſt;
Eſteemed as a *minſtrel* at a feaſt. *Sandys.*

Once the *minſtrels* of a country ſhow
Follow'd the prizes through each paltry town.
Dryden.

Often our ſeers and poets have confeſs'd,
That muſic's force can tame the furious beaſt;
Can make the wolf, or foaming boar reſtrain
His rage; the lion drop his creſted mane,
Attentive to the ſong; the lynx forget
His wrath to man, and lick the *minſtrel's* feet.
Prior.

(2.) MINSTREL, is by others derived from the French *meneſtrier*, and was not uſed in England before the Norman conqueſt. They united the powers of melody, poem, and dance. The Saxons, as well as the ancient Danes, had been accuſtomed to hold men of this profeſſion in the higheſt reverence. Their ſkill was conſidered as ſomething divine, their perſons were deemed ſacred, their attendance was ſolicited by kings; and they were every where loaded with honours and rewards. In ſhort, poets and their art were held among them in that rude admiration, which is ſhown by an ignorant people to ſuch as excel them in intellectual accompliſhments. When the Saxons were converted to Chriſtianity, in proportion as letters prevailed among them, this rude admiration began to abate, and poetry was no longer a peculiar profeſſion. The poet and the minſtrel became two perſons. Poetry was cultivated by men of letters indiſcriminately, and many of the moſt popular rhymes were compoſed amidſt the leiſure and retirement of monaſteries. But the minſtrels continued a diſtinct order of men, and got their livelihood by ſinging verſes to the harp at the houſes of the great. There they were ſtill hoſpitably and reſpectfully received, and retained many of the honours ſhown to their predeceſſors, the BARDS and SCALDS. And, indeed, though ſome of them only recited the compoſitions of others, many of them ſtill compoſed ſongs themſelves; and all of them could probably invent a few ſtanzas on occaſion. In the 4th year of Richard II. John of Gaunt erected at Tetbury in Staffordſhire a court of Minſtrels, with a full power to receive ſuit and ſervice from the men of his profeſſion within five neighbouring counties, to enact laws, and determine their controverſies; and to apprehend and arreſt ſuch of them as ſhould refuſe to appear at the ſaid court, annually held on the 16th of Auguſt. For this they had a charter, by which they were empowered to appoint a king of the minſtrels, with 4 officers to preſide over them. Theſe were every year elected with great ceremony; the whole form of which is deſcribed by Dr Plott; in whoſe time, however, they ſeem to have become mere muſicians. Even ſo late as the reign of King Henry VIII. the reciters of verſes or moral ſpeeches, intruded without ceremony into all companies; not only in taverns, but in the houſes of the nobility. This we learn from Eraſmus, whoſe argument led him only to deſcribe a ſpecies of theſe men who did not ſing their compoſitions. We find that the minſtrels continued down to the reign of Q. Elizabeth; in whoſe time they had loſt much of their dignity, and were ſinking into neglect. Yet ſtill they ſuſtained a character far ſuperior to any thing we can now conceive of the ſingers of old ballads. One of them is thus deſcribed by a cotemporary writer: "About his neck a red riband ſuitable to his girdle. His harp in good grace depending before him. His wreſt tyed to a green lace and hanging by: under the gorget of his gown a fair flaggon chain, (pewter for) ſilver, as a ſquire Minſtrel of Middleſex, that travelled the country unto fair and worſhipful men's houſes. From his chain hung a ſcutcheon, with metal and colour reſplendent upon his breaſt, of the ancient arms of Iſlington." Towards the end of the 16th century, this claſs of men had loſt all credit, and were ſunk ſo low in the public opinion, that in the 39th of Elizabeth a ſtatute was paſſed, by which "minſtrels, wandering abroad," were included among "rogues, vagabonds, and ſturdy beggars," and were adjudged to be puniſhed as ſuch. This act ſeems to have put an end to the profeſſion.

* MINSTRELSEY. *n. ſ.* [from *minſtrel.*] 1. Muſic; inſtrumental harmony.—

Apollo's ſelf will envy at this play,
And all the world applaud his *minſtrelſey.*
Davies.

He hears
In that day's rude hoarſe *minſtrelſey*, the ſpheres. *Donne.*

I began,
Wrapt in a pleaſing fit of melancholy,
To meditate my rural *minſtrelſey*,
Till fancy had her fill. *Milton.*

2. A number of muſicians.

Miniſtring ſpirits, train'd up in feaſt and ſong!
Such haſt thou arm'd the *minſtrelſey* of heav'n.
Milton.

(1.) * MINT. *n. ſ.* [*minte*, Saxon; *menthe*, Fr. *mentha*, Latin.] A plant.—

Then rubb'd it o'er with newly-gather'd *mint*,
A wholeſome herb. *Dryden.*

(2.) MINT, in botany. See MENTHA.

(3.) * MINT. *n. ſ.* [*munte*, Dutch, *minetian*, *to coin*, Saxon.] 1. The place where money is coined. What is a perſon's name or face, that receives all his reputation from the *mint*, and would never have been known had there not been medals. *Addiſon.* 2. Any place of invention.—

A man in all the world's new faſhion planted,
That hath a *mint* of phraſes in his brain. *Shak.*

—As the *mints* of calumny are at work, a great number of curious inventions are iſſued out, which grow current among the party. *Addiſon.*

(4.) MINT, (§ 3, *def.* 1.) See COINAGE. There were anciently mints in almoſt every county in England; but the only mint at preſent in the Britiſh dominions is that in the tower of London. The officers of the mint are, 1. The warden, who is the chief; he overſees the other officers, and receives the bullion. 2. The maſter worker who receives bullion from the warden, cauſes it to be melted, delivers it to the moneyers, and, when it is coined, receives it again. 3. The comptroller, who is the overſeer of all the inferior officers, and ſees that all the money is made to the juſt aſſize. 4. The aſſay-maſter, who weighs the gold and ſilver, and ſees that it is according to the ſtandard. 5. The two auditors who take the accounts. 6. The ſurveyor of the melting; who, after the aſſay-maſter has made trial of the bullion, ſees that it is caſt out and not altered after it is delivered to the melter. 7. The engraver; who engraves the ſtamps and dyes for the coinage of the money. 8. The clerk of the irons; who ſees that the irons are clean and fit to work with. 9. The melter who melts the bullion before it be coined. 10. The provoſt of the mint; who provides for and overſees all the moneyers. 11. The blanchers, who anneal and cleanſe the money. 12. The moneyers; ſome of whom forge the money, ſome ſhare it, ſome round and mill it, and ſome ſtamp and coin it. 13. The porters who keep the gate.

(5.) *The* Mint was alſo a pretended place of privilege, in Southwark, near the King's Bench, aboliſhed by ſtatute. If any perſons, within the limits of the mint ſhall obſtruct any officer in the ſerving of any writ or proceſs, &c. or aſſault any perſon therein, ſo as he receive any bodily hurt, the offender ſhall be guilty of felony, and be tranſported to the plantations, &c. Stat. 9. Geo. I.

(6.) Mint Marks. It was uſual, anciently, to oblige the maſters and workers of the mint, in the indentures made with them, "to make a privy mark on all the money that they made, as well of gold as of ſilver, ſo that another time they might know, if need were, and witte which moneys of gold and ſilver, among other of the ſame moneys, were of their own making, and which not." And whereas, after every trial of the pix at Weſtminſter, the maſters and workers of the mint, having there proved their moneys to be lawful and good, were immediately entitled to receive their *quietus* under the great ſeal, and to be diſcharged from all ſuits or actions concerning thoſe moneys, it was then uſual for the ſaid maſters and workers to change the privy mark before uſed for another, ſo that the moneys from which they were not yet diſcharged might be diſtinguiſhed from thoſe for which they had already received their *quietus*; which new mark they then continued to ſtamp upon all their moneys, until another trial of the pix gave them alſo their *quietus* concerning theſe. The Pix is a ſtrong box with three locks, whoſe keys are reſpectively kept by the warden, maſter, and comptroller of the mint; and in which are depoſited, ſealed up in ſeveral parcels, certain pieces taken at random out of every *journey* as it is called; that is, out of every 15lb. weight of gold, or 60lb. weight of ſilver, before the ſame is delivered to the proprietors. And this pix is, from time to time, by the king's command, opened at Weſtminſter, in the preſence of the lord chancellor, the lords of the council, the lords commiſſioners of the treaſury, the juſtices of the
ſeveral benches, and the barons of the excheque
before whom a trial is made, by a jury of gol
ſmiths impannelled and ſworn for that purpo
of the collective weights of certain parcels of t
ſeveral pieces of gold and ſilver taken at rando
from thoſe contained in the pix; after which th
parcels being ſeverally melted, aſſays are th
made of the bullion of gold and ſilver ſo p
duced, by the melting certain ſmall quantities
the ſame againſt equal weights taken from the
ſpective trial pieces of gold and ſilver that are d
poſited and kept in the exchequer for that u
This is called the *trial of the pix;* the report ma
by the jury upon that trial is called the *verdict*
the pix for that time; and the indented trial pie
juſt abovementioned, are certain plates of ſta
ard gold and ſtandard ſilver, made with the gre
eſt care, and delivered in upon oath, from ti
to time, by a jury of experienced goldſmiths, ſu
moned by a warrant from the lords of the tr
ſury to the wardens of the goldſmiths of Londo
and which plates being ſo delivered in, are de
ded each, at this time, into 7 parts by indentu
one of which part is kept in his majeſty's co
of exchequer at Weſtminſter, another by the ſ
company of goldſmith's and two more by the
ficers of his majeſty's mint in the tower; the
maining three being for the uſe of the mint,
in Scotland. The pix has ſometimes been tr
every year, or even oftener, but ſometimes
more than once in ſeveral years: and hence is
derſtood how it comes to paſs, that among
pieces that are dated as well as marked, three
more different dates are ſometimes found u
pieces impreſſed with the ſame mark; and ag
that different marks are found upon pieces b
ing the ſame date. Theſe marks are firſt obſ
able upon the coins of K. Edward III.; the wo
above quoted concerning thoſe marks are fr
the indentures made with the lord Haſtings, m
ter and worker to Edward IV.; and the ma
themſelves continued to be ſtamped very con
cuouſly upon the moneys, till the coinage by
mill and ſcrew was introduced and ſettled a
the Reſtoration, in 1662: ſince which time
moneys, being made with far greater regula
and exactneſs, than before theſe marks have ei
been totally laid aſide, or ſuch only have b
uſed as are of a more ſecret nature, and c
known to the officers and engravers concerne
the coinage: and indeed the conſtant prac
that has ever ſince prevailed, of dating all the
veral pieces, has rendered all ſuch marks of m
leſs conſequence than before.

(7.) *The* Mint of Scotland was aboliſ
by the articles of the Union, but the nominal
fices are ſtill kept up, and afford ſinecure p
ſions to 8 perſons, as follows: The general
300l. a year; maſter, 200l.; warden, 150l; co
ter warden, 60l.; aſſay-maſter, 100l.; engra
50l; King's clerk, 40l; and ſmith, 33l. per ann
They have alſo a free houſe each; and the bo
daries of the mint have a privilege of protect
inſolvent debtors from caption.

* *To* Mint. *v. a.* [from the noun.] 1. To c
to ſtamp money.—Another law was, to brin
the ſilver of the realm to the mint, and ſo to

the mint on work, and to give way to new coins of ſilver which ſhould be then *minted*. *Bacon's Henry VII.* 2. To invent; to forge.—Look into the rules whereby they hold theſe new portions of the crown, and you will find them of ſuch natures as may be eaſily *minted*. *Bacon's War with Sp.*

* MINTAGE. *n. ſ.* [from *mint*.] 1. That which is coined or ſtamped.—

Unmoulding reaſon's *mintage*
Character'd in the face. *Milton.*

2. The duty paid for coining. *Ainſworth.*

* MINTER. *n. ſ.* [from *mint*.] Coiner.—The *minter* muſt add other weight, if the ſilver be not pure. *Camden.*

* MINTMAN. *n. ſ.* [*mint* and *man*.] One ſkilled in coinage.—He that thinketh Spain to be ſome great over-match for this eſtate, is no good *mintman*; but takes greatneſs of kingdoms according to their bulk and currency, and not after their intrinſick value. *Bacon's War with Spain.*

Mint marks. See Mint, § 6.

* MINTMASTER. *n. ſ.* [*mint* and *maſter*.] 1. One who preſides in coinage.—That which is coined, as *mintmaſters* confeſſed, is allayed with about a twelfth part of copper. *Boyle.* 2. One who invents.—The great *mintmaſters* of theſe terms, the ſchoolmen and metaphyſicians, have wherewithal to content him. *Locke.*

(1.) MINTO, Walter, LL. D. late profeſſor of mathematics in the College of New Jerſey, was born at Minto in Roxburghſhire, about 1755. His father, Walter Minto, although he had been rather unfortunate in buſineſs, gave him a liberal education; and having removed with his family to Edinburgh, young Walter paſſed through the uſual courſe of education, with the intention of ſtudying divinity to which his pious principles very much inclined him. His education was nearly completed, when he received an offer of a very lucrative ſituation from a brother of his father, who having made money in Jamaica, and purchaſed a plantation, wiſhed his nephew to come and ſuperintend it as overſeer. But Walter's principles of religion and humanity were too deeply rooted to permit him to have any connection with the ſuperintendance of ſlaves. He therefore readily yielded this appointment to his younger brother, who had no ſuch ſcrupulous antipathy againſt the ſlave trade. Mean time, while he was waiting for an opportunity of a vacancy among the churches of the Aſſociate Synod, the religious party with which he was connected, an offer of an appointment was made to him by the late celebrated David Hume, Eſq. to whom the late Governor Johnſtone had written, deſiring him to look out for ſome young man of letters, ſufficiently qualified by education, abilities, and moral character, to accompany his two ſons as a tutor, in their travels to the continent. This propoſal being quite agreeable to Walter's taſte and genius, was readily accepted, and in conſequence of it he ſpent ſeveral years abroad, particularly at Piſa, in Italy, increaſing his own ſtock of knowledge along with that of his pupils; and became acquainted with a number of the Italian literati, particularly with the celebrated Dr Joſeph Slop of Cadenberg, profeſſor of aſtronomy in the univerſity of Piſa, and member of the academy of Bononia. He returned to Edinburgh, in 1783; obtained the degree of LL. D. from the univerſity of Aberdeen; went to America in 1784, by the advice of the earl of Buchan; and not long after obtained the profeſſorſhip of mathematics and natural philoſophy in the college of New Jerſey; where he taught theſe uſeful branches of ſcience, till the 21ſt of Oct. 1796, when he died at Princeton, leaving a widow. He publiſhed ſeveral Treatiſes; particularly, 1. "Reſearches into ſome parts of the Theory of the Planets; in which is ſolved the problem, to determine the circular orbit of a planet by two obſervations; exemplified in the New Planet: dedicated to Dr Slop: 8vo. Lond. 1783: a work which ſhows him to have been a profound mathematician, and an accurate calculator. 2. "An Inaugural Oration on the progreſs and importance of the Mathematical Sciences:" 8vo. Trenton, 1788. He alſo wrote, in conjunction with the Earl of Buchan, 3. "An Account of the Life, Writings, and Inventions of John Napier of Merchiſton;" 4to. Perth; wherein the origin of geometry, arithmetic, &c. is treated at conſiderable length. In this work, Dr Minto compoſed the whole mathematical deſcription, which is by far the moſt extenſive and laborious part of it, and does equal honour to his abilities, induſtry, and reſearches. As a ſcholar, philoſopher, and mathematician, he has left none ſuperior, few equal to him in the United States. Nor was he leſs amiable for his ſocial than literary qualifications. As a friend he was ſteady and ſincere, and as a philanthropiſt, his benevolence extended to the whole human race.

(2.) Minto, a pariſh of Scotland, in Roxburghſhire, nearly an oblong, 3½ miles long from E. to W. and 2½ broad; containing 5213 acres, of which 475 are under foreſt trees. The ſoil conſiſts of various kinds of loam and ſtrong clay. Oats, barley, wheat, turnips, and hay, are the chief crops. The population, in 1796, was 513: increaſe 117, ſince 1755. The number of ſheep was 1680, and of black cattle 380.

(3.) Minto, a village in the above pariſh, half a mile W. of Minto houſe, containing about 100 inhabitants.

MINTON, an iſland on the W. coaſt of Sumatra. Lon. 97. 8. E. Lat. 20. 55. S.

MINTURNÆ, a town of Campania between Sinueſſa and Formiæ. In the marſhes near it Marius concealed himſelf in the mud to avoid the partizans of Sylla. The people condemned him to death; but when his voice alone had terrified the executioner, they favoured his eſcape. See Marius, N° 1.

MINTZBACH, a town of Auſtria.

MINUARTIA, in botany, a genus of the trigynia order, belonging to the triandria claſs of plants; and ranking in the natural method under the 22d order, *Caryophylleæ.*

(1.) * MINUET. *n. ſ* [*menuet*, Fr.] A ſtately regular dance.—

The tender creature could not ſee his fate,
With whom ſhe'd danc'd a *minuet* ſo late. *Stepn.*

—John has aſſurance to ſet up for a *minuet* dancer. *Spectator.*

(2.) *The* Minuet is a very graceful dance, conſiſting of a coupee, a high ſtep, and a balance: it begins with a beat, and its motion is triple. The invention of it is generally aſcribed to the French, and particularly to the inhabitants of Poictou. The word is by Menage and Furetiere derived from the French *menue* or *menu*, *ſmall*, and literally ſignifies a ſmall pace. The melody of this dance conſiſts of two ſtrains, which, as being repeated, are called *repriſes*, each having 8 or more bars, but never an odd number. The meaſure is three crotchets in a bar, and is thus marked $\frac{3}{4}$, though it is commonly performed in the time $\frac{3}{8}$. Walther ſpeaks of a minuet in Lully's opera of *Roland*, each ſtrain of which contains ten bars, the ſectional number being 5; which renders it very difficult to dance.

* MINUM. *n. ſ.* 1. [With printers.] A ſmall ſort of printing letter. 2. [With muſicians.] A note of ſlow-time, two of which make a ſemibrief, as two crotchets make a minum; two quavers a crotchet, and two ſemiquavers a quaver. *Bailey.*—He's the courageous captain of compliments; he fights as you ſing prickſons, keeps time, diſtance, and proportion; reſts his *minum*, one, two, and the third in your boſom. *Shakeſp.*

MINURI, a town of Naples, in Principato Citra, 9 miles SW. of Salerno.

(1.) * MINU'TE. *adj.* [*minutus*, Latin.] Small; little; ſlender; ſmall in bulk; ſmall in conſequence.

Some *minute* philoſophers pretend,
That with our days our pains and pleaſures end.
Denham.

—Such an univerſal ſuperintendancy has the eye and hand of providence over all, even the moſt *minute* and inconſiderable things. *South.*—

Ten thouſand of *minuteſt* ſize expreſs
The ſame propenſion which the large poſſeſs.
Blackmore.

—The ſerum is attenuated by circulation, ſo as to paſs into the *minuteſt* channels, and become fit nutriment for the body. *Arbuthnot.*—In all diviſions we ſhould conſider the larger and more immediate parts of the ſubject, and not divide it at once into the more *minute* and remote parts. *Watt's Logick.*

(2.) * MI'NUTE. *n. ſ.* [*minutum*, Latin. 1. The ſixtieth part of an hour.—

This man ſo complete,
Who was enroll'd 'mongſt wonders, and when we,
Almoſt with liſt'ning raviſh'd, could not find
His hour of ſpeech a *minute*. *Shak. Henry* VIII.

2. Any ſmall ſpace of time.—

They walk'd about me ev'ry *minute* while. *Shak.*
The ſpeed of gods
Time counts not, though with ſwifteſt *minutes* wing'd. *Milton's Par. Loſt.*
Gods! that the world ſhould turn
On *minutes* and on moments. *Denham's Sophy.*

—Experience does every *minute* prove the ſad truth of this aſſertion. *South.*—

Tell her, that I ſome certainty may bring;
I go this *minute* to attend the king. *Dryden.*

3. The firſt draught of any agreement in writing; this is common in the Scottiſh law: as, have you made a *minute* of that contract?

(3.) MINUTE, in architecture, uſually denotes the 60th, ſometimes the 30th, part of a module. See ARCHITECTURE.

(4.) MINUTE, in geometry, the 60th part of degree of a circle.

* *To* MINUTE. *v. a.* [*minuter*, Fr.] To ſet dow in ſhort hints.—I no ſooner heard this critick ta of my words, but I *minuted* what he had ſai *Spectator.*

* MINUTE-BOOK. *n. ſ.* [*minute* and *book.*] Boo of ſhort hints.

* MINUTE-GLASS. *n. ſ.* [*minute* and *glaſs.*] Gl of which the ſand meaſures a minute.

(1.) * MINUTELY. *adv.* [from *minute.*] To ſmall point; exactly; to the leaſt part; nicely. In this poſture of mind it was impoſſible for hi to keep that ſlow pace, and obſerve *minutely* th order of ranging all he ſaid, from which reſul an obvious perſpicuity. *Locke.*—

Change of night and day,
And of the ſeaſons ever ſtealing round,
Minutely faithful. *Thomſon's Summ*

(2.) * MI'NUTELY. *adv.* [from *minute*, the ſu ſtantive.] 1. Every minute; with very little ti intervening.—What is it but a continued perp tuated voice from heaven, reſounding for ever our ears? As if it were *minutely* proclaimed thunder from heaven, to give men no reſt in th ſins. *Hammond.* 2. [In the following paſſage ſeems rather to be an adjective, as *hourly* is bo the adverb and adjective.] Happening every m nute.—

Now *minutely* revolts upbraid his faith-brea
Thoſe he commands, move only in comman
Nothing in love. *Shakeſp. Macb*

* MINUTENESS. *n. ſ.* [from *minute.*] Sma neſs; exility; inconſiderableneſs.—The animal ſ rit and inſenſible particles never fall under o ſenſes by reaſon of their *minuteneſs*. *Bentley.*

* MINUTE-WATCH. *n. ſ.* [*minute* and *watch.*] watch in which minutes are more diſtinctly ma ed than in common watches which reckon by t hour.—Caſting our eyes upon a *minute-watch*, found that from the beginning of the pumpi about two minutes after the coals had been p in glowing, to the total diſappearing of the fi there had paſſed but three minutes. *Boyle.*

MINUTIUS FELIX, a father of the primiti church who flouriſhed in the third century ab the year 220. He wrote a very elegant dialog in defence of the chriſtian religion, intit "Octavius."

* MINX. *n. ſ.* [contracted, I ſuppoſe, fr *minnock.*] A young, pert, wanton girl.—

Lewd *minx*!
Come, go with me apart. *Shak*
Some torches bore, ſome links,
Before the proud virago *minx*. *Hudib*
She, when but yet a tender *minx*, began
To hold the door, but now ſets up for man.
Dry

MINYÆ, the ancient inhabitants of ORC MENOS in Bœotia, ſo named from MINYAS k of the country. Orchomenos the ſon of Min gave his name to the capital, but the inhabita ſtill retained their original appellation, in cont diſtinction to the Orchomenians of Arcadia. colony of Orchomenians paſſed into Theſſaly ſettled in Iolchos; and were called *Minyæ*; cauſe their chiefs were deſcended from the dau ters of Minyas. Part of the Orchomenians

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companied the ſons of Codrus when they migrated to Ionia. The ARGONAUTS, as well as their deſcendants, received likewiſe the name of *Minyæ*. They firſt inhabited LEMNOS, where they had been born from the Lemnian women who had murdered their huſbands. They were driven from Lemnos by the Pelaſgi, about A. A. C. 1160, and came to ſettle in Laconia, whence they paſſed into Calliſte with a colony of Lacedemonians.

MINYAS, in fabulous hiſtory, a king of Bœotia, the ſon of Neptune by Tritegenia, daughter of Æolus. He had 6 ſons, of whom the moſt famous were Orchomenos and Athamas; and 3 daughters.

MINYCUS, a river of Theſſaly.

MINYEIDES, the 3 daughters of MINYAS, called Alcithoe, Leucippe, and Leuconoe, who were changed into bats. *Ovid.* Met. iv. Fab. 12.

MIOKACK, a town of Sweden, in W. Gothia.

(1.) **MIOLANS**, a town of France, in the dep. of the Lower Alps; 9 Miles W. of Barcelonetta, and 6 NE. of Mont Melian. Lon. 6. 20. E. Lat. 45. 35. N.

(2.) **MIOLANS**, a town of France, in the dep. of Mont Blanc, (late Savoy), at the conflux of the Arche and Iſere: 10 miles E. of Chambery.

MIONIKIELLE, a town of Perſia, in Mazenderan: 42 miles S. of Ferabad.

MIOSS, a large lake of Norway, in Hedemarke, Aggerhuus; 50 miles long from N. to S. from 12 to 18 broad, and 80 in circumference. It is nearly divided by a large peninſula, and contains an iſland, 10 miles in circumferance, inhabited by farmers, and fertile in corn, wood, and paſture. The S. end of this lake is 30 miles NE. of Chriſtiania.

MIPROVATZ, a town of European Turkey, the ſee of a Greek archbiſhop, 52 miles NW. of Sophia.

MIQUELETS, a name given to the Spaniards who inhabit the Pyrenean mountains on the frontiers of Arragon and Catalonia, and live by robbing.

MIQUILON, a ſmall deſart iſland SW. of Cape May in Newfoundland, ceded to the French by the peace of 1763, for drying and curing their fiſh. In 1778, it was taken by the Britiſh, but reſtored in 1783; and in 1793 it was again taken, but reſtored by the peace of 1801-2. Lon. 56. 5. W. Lat. 46. 56. N.

MIQUINEZ. See MEQUINEZ.

MIR, a town of Lithuania, in Novogrod.

(1.) **MIRA**, a town of Peru, in Quito.

(2.) **MIRA**, a town of Portugal, in Beira.

(3.) **MIRA**, a town of Turkey, in Moldavia.

MIRABAT, a town of Arabia, in Oman.

MIRABAUD, John Baptiſt, a learned French author, born in 1674. He was perpetual ſecretary to the French academy, and publiſhed tranſlations of Taſſo's Jeruſalem, and Orlando Furioſo into French. He died in 1786.

(1.) **MIRABEAU**, Count or Marquis of MIRABEAU, a French nobleman celebrated for his literary attainments, and founder of the ſect of *Oeconomiſts*. He enjoyed ſeveral important offices under government. Beſides ſeveral other works, he publiſhed a famous book, entitled *L'Ami des Hommes*, or the Friend of Mankind. He died in 1786. His anceſtor, the firſt Count, was a favourite of Henry the Great, and was in the coach with him when he was murdered.

(2.) **MIRABEAU**, Gabriel Honore Riquetti, Count of, the eldeſt ſon of the preceding, was born at Paris, in 1749. He ſhowed great abilities at an early age, but having been guilty of ſome juvenille indiſcretions, his father treated him with ſo much ſeverity, that he fled from his perſecutions in 1769, and took refuge in Holland; where he publiſhed a book *againſt Deſpotiſm both regal and paternal.* On his return to France, he was ſeized, on a *lettre de Cachet*, obtained by his father, and ſhut up in a ſtate priſon; but the walls of a dungeon could not damp the vigour of his mind, nor repreſs the activity of his genius; for amidſt the gloom and melancholy of a rigorous confinement, he wrote his much admired work *On Lettres de Cachet*, which was publiſhed ſoon after he had obtained his liberty, and being circulated through France, and ſoon after through all Europe, contributed to pave the way for the popular fermentation and revolution that followed. But while his literary fame was thus riſing, his moral character was ſullied by repeated ſcenes of diſſipation, which his father in vain endeavoured to repreſs by ſucceſſive impriſonments; inſomuch that it is ſaid he had obtained no fewer than 30, Dr Watkins ſays 67, lettres de cachet againſt him. But while the old count was even meditating how to diſinherit him, young Gabriel was releaſed from farther perſecution by his death. Soon after this, he travelled through Germany, Switzerland, England, and Flanders; and upon his return, was appointed by M. De Calonne a kind of private envoy to the court of Berlin, Frederick the Great being then in his decline, and the French court wiſhing to be acquainted with the genius and capacity of the Prince Royal. The Count fulfilled the object of his miſſion with ſucceſs, and diſcloſed the ſituation, the views and characters of the Pruſſian court, in a work that attracted the attention of all Europe. This work was entitled *The Secret Hiſtory of the Court of Berlin*, and was condemned by the parliament of Paris. Yet at this period the Count's ambition aſpired no higher than to fill ſome inferior diplomatic office. But M. De Calonne either did not juſtly appreciate his abilities, or viewed them with envy; for he neither gave him a new appointment, nor properly rewarded him for what he had done. But Mirabeau was ordained ſoon to figure in a much more conſpicuous ſtation. At the meeting of the States of Provence, in 1787, he delivered an oration, which not only procured him the higheſt applauſe for his eloquence and patriotiſm, but inſpired all who heard it with the ſame zeal for liberty and enmity to deſpotiſm, that ſeemed to influence himſelf. This memorable oration procured him to be elected a member of the Conſtituent National Aſſembly, both by the citizens of Marſeilles and thoſe of Aix. He took his ſeat for the latter, and ſoon diſtinguiſhed himſelf as the moſt able advocate that France had ſeen for the rights of the people. In that aſſembly of the greateſt and moſt learned men that France ever convened together, Mirabeau was elected preſident, and cut a moſt conſpicuous figure; and had he lived, would, in all probability, by his eminent abilities and prudent meaſures, have completed that revolution, which he had ſo active a hand in beginning; without thoſe bloody meaſures, which afterwards threw every thing into confuſion, and which, after the murder of the king and of the beſt friends of liberty in France, have at laſt iſſued in the eſtabliſhment of a deſpotiſm fully as abſolute and unlimited as that which the National Aſſembly aboliſhed. (See REVOLUTION.) But his patriotic career was ordained to be ſhort. In the midſt of his glory and of his ſchemes for the permanent eſtabliſhment of a free conſtitution under a limited monarchy, he was ſeized with a rheumatic gout, which from its commencement prognoſticated a fatal iſſue. All Paris was in anxious alarm, but in ſpite of the beſt medical advice, he died on the 2d April 1791. He continued to the laſt to talk of public affairs, and when no longer able to converſe, expreſſed his ſentiments on ſome important ſubjects in writing. His natural ſon was ſo concerned for his approaching death, that he killed himſelf the day before he died. His works conſiſt of 18 treatiſes, chiefly in favour of the democratic ſyſtem.

(1.) MIRABEL, a town of France, in the department of the Drome, 4½ miles SSW. of Nions.

(2.) MIRABEL, a town of France, in the dep. of Lot, 9 miles N. of Montauban, and 18 S. of Cahors.

(1.) MIRABELLA, a town of Naples, in the county of Moliſe, 14 miles SE. of Moliſe.

(2.) MIRABELLA, a town of Naples, in Principato Ultra; 10 miles SE. of Benevento.

MIRABILIS, MARVEL OF PERU, a genus of the monogynia order, belonging to the pentandria claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. The corolla is funnel-ſhaped above; the calyx inferior; the nectarium globular, containing the germen. The moſt remarkable ſpecies are theſe:

1. MIRABILIS DICHOTOMA, the *dichotomous*, or *forked marvel;* has a thick fleſhy root, an upright, thick, ſwollen, jointed ſtem, branching forkedly 2 or 3 feet high; oblong oppoſite leaves; and ſmalliſh red flowers at the axillas, ſingly and cloſe-fitting.

2. MIRABILIS JALAPPA, the common *marvel of Peru*. It has a large, thick, fleſhy root; an upright, thick, jointed ſtalk, dividing and branching numerouſly, widely, and erectly, a yard or more high: garniſhed with oblong, broad, oppoſite leaves: and all the branches and ſhoots terminated by numerous flowers in cluſters, of different colours in the varieties. Of this there are varieties with, 1. white flowers, 2. yellow, 3. purple, 4. red, 5. white and yellow, 6. white and purple, 7. purple and yellow, and 8. red and yellow flowers. Several other varieties often riſe from ſeed; but although ſeveral of the above colours and variegations are ſometimes common to the ſame plant, yet it is rare that a plant of this ſpecies produces flowers of one of theſe colours alone; ſometimes, however, the ſame plant will exhibit only white and purple flowers ſeparate, and ſometimes both colours in the ſame flowers, intermixed with the plain ones: the ſame is alſo obſervable in the red and yellow; others have plain flowers of ſeveral different colours, and ſometimes variegated flowers alſo on the ſame plants. Thi ſpecies has a large tap root, which, when cu acroſs, reſembles that of the true JALAP; bu when dried, is white, light, and ſpongy.

3. MIRABILIS LONGIFLORA, or the *long flou ered marvel*, hath a large, thick, and fleſhy root a thick ſtalk, dividing low into many declinate ſpreading branches, extending two or three fee every way; large heart-formed, hairy, viſcou leaves, in oppoſite pairs; and all the branches an ſhoots terminated by white flowers in cluſter having very long tubes, nodding downward. Al theſe plants flower in July, continuing in plentiful ſucceſſion until October, very conſpicuous an elegant. They have the ſingularity of being ſhu all day, and expanding towards the evening whe the ſun declines; hence the inhabitants of the Indies, where they grow naturally, called them *fou o'clock flowers:* their time of opening here, however, depends on the weather; for if cloudy, o that the ſun is not very vehement, they ofte open great part of the day. They are naturall perennial in root; but in this country are commonly conſidered as annuals: for they riſe from ſeed in the ſpring, and the ſame year produce flowers and perfect ſeed; and if left to nature in the open air, totally periſh in winter, at the firſt attack of froſt or exceſſive rain. If in autumn, however, when the ſtalks begin to aſſume a ſtate of decay, the roots are taken up, preſerved in ſand in a dry room, and planted again in ſpring, they ſhoot out afreſh ſtronger than at firſt, and ſometimes riſe 4 or 5 feet high, with very ſpreading heads; or if plants growing in pots, having the ſtems cut down in autumn, and the pots placed in a green-houſe, or garden frames under glaſſes, the roots may alſo be preſerved ſound, and will ſhoot out again in ſpring as above. The roots of all theſe plants are purgative; but require to be given in a great quantity to operate equal to the true jalap, which is a ſpecies of convolvulus. See CONVOLVULUS, N° 3.

MIRABOUC, or MIRABOUK, a fort of France, in the late principality of Piedmont, and diſtrict of the Four Valleys, at the Paſs into France, 6 miles WNW. of Lucerne, and 11 W. of Pignerole. It was taken by the French under Gen. Dumas and Caira, on the 10th May 1794.

(1.) * MIRACLE. *n. ſ.* [*miracle*, Fr. *miraculum*, Latin.] 1. A wonder; ſomething above human power.—

> Nothing almoſt ſees *miracles*
> But miſery. *Shak. King Lear.*
> Virtuous and holy, choſen from above,
> To work exceeding *miracles* on earth. *Shak.*
> Be not offended, nature's *miracle*,
> Thou art allotted to be ta'en by me. *Henry VI.*

2. [In theology.] An effect above human or natural power, performed in atteſtation of ſome truth. —The *miracles* of our Lord are peculiarly eminent above the lying wonders of demons, in that they were not made out of vain oſtentation of power, and to raiſe unprofitable amazement; but for the real benefit and advantage of men, by feeding the hungry, healing all ſorts of diſeaſes, ejecting of devils, and reviving the dead. *Bentley.*

(2.) MIRACLE, (§ 1. *def.* 2.) is defined by Dr Gleig, " an effect contrary to the eſtabliſhed conſtitutio ſtitution and courſe of things, or a ſenſible deviation from the known laws of nature. That the univerſe (continues he) is governed by ſtated general rules, or that there is an order of cauſes and effects eſtabliſhed in every part of the viſible ſyſtem of nature, is a fact which cannot be controverted. If the Supreme Being be the only real agent in the univerſe, we have the evidence of experience, that, in the particular ſyſtem to which we belong, he acts by ſtated rules. If he employs inferior agents to conduct the various motions from which the phenomena reſult, we have the ſame evidence that he has ſubjected thoſe agents to certain fixed laws, commonly called the *laws of nature*. On either hypotheſis, effects which are produced by the regular operation of theſe laws, or which are conformable to the eſtabliſhed courſe of events, are properly called *natural;* and every deviation from this conſtitution of the natural ſyſtem, and the correſpondent courſe of events in it, is called a *miracle*. If this definition be juſt, no event can be deemed miraculous merely becauſe it is ſtrange, or even to us unaccountable; ſince it may be nothing more than a regular effect of ſome unknown law of nature. In this country earthquakes are rare; and for monſtrous births perhaps no *particular* and ſatisfactory account can be given: yet an earthquake is as regular an effect of the eſtabliſhed laws of nature as any of thoſe with which we are moſt intimately acquainted; and under circumſtances in which there would always be the ſame kind of production, the monſter is nature's genuine iſſue. It is therefore neceſſary, before we can pronounce any effect to be a true miracle, that the circumſtances under which it is produced be known, and that the common courſe of nature be in ſome degree underſtood; for in all thoſe caſes in which we are totally ignorant of nature, it is impoſſible to determine what is, or what is not, a deviation from its courſe. Miracles, therefore, are not, as ſome have repreſented them, appeals to our *ignorance*. They ſuppoſe ſome antecedent *knowledge* of the courſe of nature, *without* which no proper judgment can be formed concerning them; though *with* it their reality may be ſo apparent as to prevent all poſſibility of a diſpute. Thus, were a phyſician to cure a blind man of a cataract, by anointing his eyes with a chemical preparation which we had never before ſeen, and to the nature and effects of which we are abſolute ſtrangers, the cure would undoubtedly be *wonderful;* but we could not pronounce it *miraculous*, becauſe, for any thing known to us, it might be the natural effect of the operation of the unguent on the eye. But were he to recover his patient merely by commanding him to ſee, or by anointing his eyes with clay and ſpittle, we ſhould with the utmoſt confidence pronounce the cure to be a miracle; becauſe we know perfectly that neither the human voice nor human ſaliva have, by the eſtabliſhed conſtitution of things, any ſuch power over the diſeaſes of the eye. No one is now ignorant, that perſons apparently dead are often reſtored to their families and friends, by being treated in the manner recommended by the Humane Society. To the vulgar, and ſometimes even to men of ſcience, theſe effects appear very wonderful; but as they are known to be produced by phyſical agency, they can never be conſidered as miraculous deviations from the laws of nature. On the other hand, no one could doubt of his having witneſſed a real miracle who had ſeen a perſon that had been four days dead come alive out of his grave at the *call* of another, or who had even beheld a perſon exhibiting all the *ſymptoms* of death inſtantly reſuſcitated, merely by being *commanded* to live. Thus it is eaſy, in all caſes, in which the courſe of nature is underſtood, to determine whether any particular event be really a miracle; while in circumſtances where we know nothing of nature and its courſe, even a true miracle could not be admitted as ſuch, or carry any conviction to the mind of a philoſopher. If miracles be effects contrary to the eſtabliſhed conſtitution of things, we are certain that they will never be performed on trivial occaſions. The conſtitution of things was eſtabliſhed by the Creator and Governor of the univerſe, and is undoubtedly the offſpring of infinite wiſdom purſuing a plan for the beſt of purpoſes. From this plan no deviation can be made but by God himſelf, or by ſome powerful being acting with his permiſſion. The plans of infinite wiſdom muſt be abſolutely perfect. From this conſideration, ſome have concluded, that no miracle was ever wrought, or can rationally be expected; but mature reflection muſt ſatisfy us that all ſuch concluſions are haſty. Man is unqueſtionably the principal creature in this world, and apparently the only one in it, who is capable of being made acquainted with the relation in which he ſtands to his Creator. We cannot, therefore, doubt, but that ſuch of the laws of nature as extend not their operation beyond the limits of this earth, were eſtabliſhed chiefly, if not ſolely, for the good of mankind; and if, in any particular circumſtances, that good can be more effectually promoted by an occaſional deviation from thoſe laws, ſuch a deviation may be reaſonably expected. Were man, in the exerciſe of his mental and corporeal powers, ſubjected to the laws of phyſical neceſſity, the circumſtances ſuppoſed would indeed never occur, and, of courſe, no miracle could be admitted. But ſuch is not the nature of man."

(3.) MIRACLES, ARGUMENTS FOR THE EXISTENCE OF. "Without repeating what has been ſaid under METAPHYSICS, (*Sect.* XVIII. § 78.) of NECESSITY and LIBERTY, we ſhall take it for granted, that the relation between motives and actions, is different from that between cauſe and effect in phyſics; and that mankind, by their voluntary conduct, can make themſelves in a great degree either happy or miſerable. We know likewiſe from hiſtory, that almoſt all mankind were once ſunk in the groſſeſt ignorance of the moſt important truths; that they knew not the Being by whom they were created and ſupported; that they worſhipped ſtocks, ſtones, and the vileſt reptiles; and that they were ſlaves to the moſt impious, cruel, and degrading ſuperſtitions. From this depraved ſtate it was ſurely not unworthy of the common FATHER OF ALL to reſcue his helpleſs creatures, to enlighten their underſtandings that they might perceive what is right, and to preſent to them motives of ſufficient force to engage them in the practice of it. But the underſtandings of ignorant barbarians cannot be enlightened by arguments; becauſe, of the force of ſuch arguments as regard moral ſcience, they are not qualified to judge. The philoſophers of Greece and Rome inculcated, indeed, many excellent moral precepts, and they ſometimes ventured to expoſe the abſurdities of the reigning ſuperſtition; but their lectures had no influence upon the multitude; and they had themſelves imbibed ſuch erroneous notions reſpecting the Supreme Being, and the nature of the human ſoul, and eſtabliſhed thoſe notions as firſt principles, of which they would not permit an examination, that even among them a thorough reformation was not to be expected from the powers of reaſoning. It is likewiſe to be remarked, that there are many truths of the utmoſt importance to mankind, which unaſſiſted reaſon could never have diſcovered. Among theſe we may reckon the immortality of the ſoul, the terms upon which God will be reconciled to ſinners, and the manner in which that all-perfect Being may be acceptably worſhipped; about all of which philoſophers were in ſuch uncertainty, that, according to Plato, "Whatever is ſet right, and as it ſhould be, in the preſent evil ſtate of the world, can be ſo only by the particular interpoſition of God." (*De Repub. Lib.* 6.) An immediate revelation from Heaven, therefore, was the only method by which infinite wiſdom and perfect goodneſs could reform a bewildered and vicious race. But this revelation muſt have been made directly either to ſome choſen individuals commiſſioned to inſtruct others, or to every man and woman for whoſe benefit it was ultimately intended. Were every perſon inſtructed in the knowledge of his duty by immediate inſpiration, and were the motives to practice it brought home to his mind by God himſelf, human nature would be wholly changed: men would not be maſters of their own actions; they would not be moral agents, nor be capable either of reward or puniſhment. It remains, therefore, that if God has been graciouſly pleaſed to enlighten and reform mankind, without deſtroying that moral nature which is eſſential to virtue, he can have done it only by revealing his truth to certain perſons choſen to be the immediate inſtructors of their contemporaries, and through them of ſucceeding ages. Let us ſuppoſe this to have been the caſe, and conſider how theſe inſpired teachers could communicate to others every truth which had been revealed to themſelves. They might eaſily deliver a ſublime ſyſtem of natural and moral ſcience, and eſtabliſh it upon the common baſis of experiment and demonſtration; but what foundation could they lay for thoſe truths which unaſſiſted reaſon cannot diſcover, and which, when revealed, appear to have no neceſſary relation to any thing previouſly known? To a bare affirmation that they had been immediately received from God, no rational being could be expected to aſſent. The teachers might be men of known veracity, whoſe ſimple aſſertion would be admitted as ſufficient evidence for any fact, in conformity with the laws of nature; but as every man has the evidence of his own conſciouſneſs and experience, that revelations from heaven are deviations from theſe laws, a aſſertion ſo apparently extravagant would be rejected as falſe, unleſs ſupported by ſome bette proof than the mere aſſertion of the teacher. I this ſtate of things, we can conceive no evidenc ſufficient to make ſuch doctrines be received a the truths of God, but the power of working miracles committed to him who taught them. Thi would, indeed, be fully adequate to the purpoſe For if there were nothing in the doctrines themſelves impious, immoral, or contrary to truth already known, the only thing which could rende the teacher's aſſertion incredible, would be its implying ſuch an intimate communion with God a is contrary to the eſtabliſhed courſe of things, b which men are left to acquire all their knowledg by the exerciſe of their own faculties. Let u now ſuppoſe ſome of thoſe inſpired teachers t tell his countrymen, that he did not deſire them on his *ipſe dixit*, to believe that he had any preternatural communion with the Deity, but that fo the truth of his aſſertion he would give them th evidence of their own ſenſes; and after this declaration, let us ſuppoſe him immediately to raiſ a perſon from the dead in their preſence, merel by calling upon him to come out of his grave Would not the only poſſible objection to th man's veracity be removed by this miracle? an his aſſertion that he had received ſuch and ſuc doctrines from God, be as fully credited as if i related to the moſt common occurrence? Undoubtedly it would; for when ſo much preternatural *power* was viſibly communicated to thi perſon, no one could have reaſon to queſtion hi having received an equal portion of preternatura *knowledge*. A palpable deviation from the know laws of nature, in one inſtance, is a deciſive proo that ſuch a deviation is poſſible in another; an in ſuch a caſe as this, it is the teſtimony of Go to the truth of a man. Miracles, then, unde which we include prophecy, are the only direc evidence which can be given of divine inſpiratio When a religion, or any religious truth, is to b revealed from heaven, they appear to be abſolutely neceſſary to enforce its reception amon men; and this is the only caſe in which we ca ſuppoſe them neceſſary, or believe that they eve have been or will be performed. The hiſtory o almoſt every religion abounds with relations o prodigies and wonders, and of the intercourſe o men with the gods; but we know of no religiou ſyſtem, thoſe of the Jews and Chriſtians excepted which appealed to miracles as the *ſole evidence* o its truth and divinity. The pretended miracl mentioned by Pagan hiſtorians and poets, are no ſaid to have been publicly wrought to enforce th truth of a new religion contrary to the reigning idolatry. Many of them may be clearly ſhown t have been mere natural events. See MAGIC, III. Others are repreſented as having been performed in ſecret on the moſt trivial occaſions, an in obſcure and fabulous ages long prior to the er of the writers by whom they are recorded. An ſuch of them as at firſt view appear to be beſt atteſted, are evidently tricks contrived for intereſted purpoſes; to flatter power, or to promote th prevailing ſuperſtitions. For theſe reaſons, a well as on account of the immoral characte o

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the divinities, by whom they are ſaid to have been wrought, they are altogether unworthy of examination, and carry in the very nature of them the completeſt proofs of falſehood and impoſture. But the miracles recorded of Moſes and of Chriſt bear a very different character. None of them is repreſented as wrought on trivial occaſions. The writers who mention them were eye-witneſſes of the facts; which they affirm to have been performed publicly, in atteſtation of the truth of their reſpective ſyſtems. They are indeed ſo incorporated with theſe ſyſtems, that the miracles cannot be ſeparated from the doctrines; and if the miracles were not really performed, the doctrines cannot poſſibly be true. They were alſo wrought in ſupport of revelations which oppoſed all the religious ſyſtems, ſuperſtitions, and prejudices, of the age in which they were given: a circumſtance which of itſelf ſets them, in point of authority, infinitely above the Pagan prodigies, as well as the lying wonders of the Romiſh church. It is indeed univerſally admitted, that the miracles mentioned in Exodus and the Goſpels might, to thoſe who ſaw them performed, be ſufficient evidence of the divine inſpiration of Moſes and of Chriſt; but to us, it may be argued, that they are no evidence whatever, as we muſt believe in theſe miracles upon the bare authority of human teſtimony. Why, it has been aſked, are not miracles wrought in all ages and countries? If the religion of Chriſt was to be of perpetual duration, every generation of men ought to have complete evidence of its truth and divinity. To the performance of miracles in every age and in every country, the ſame objections lie as to the immediate inſpiration of every individual. The very end of all miracles would be defeated by their frequency. Miracles ſo often repeated would have *no* authority, becauſe it would be difficult, if not impoſſible, to diſtinguiſh them from natural events. If they recurred regularly at certain intervals, we could not prove them to be deviations from the known laws of nature, becauſe we ſhould have the ſame experience for the regular ſucceſſion of preternatural effects, as for the eſtabliſhed conſtitution and courſe of things. We may farther affirm, that for the reality of the Goſpel miracles we have evidence as convincing to the reflecting mind, though not ſo ſtriking, as thoſe had who were contemporary with Chriſt and his apoſtles, and actually ſaw his mighty works. To the admirers of Mr Hume's philoſophy this aſſertion will appear an extravagant paradox; but we hope to demonſtrate its truth from principles, which, conſiſtently with himſelf, that author could not have denied. He has indeed endeavoured to prove (*in his Eſſay on Miracles*), that "no teſtimony is ſufficient to eſtabliſh a miracle;" and the reaſoning employed for this purpoſe is, "that a miracle being a violation of the laws of nature, which a firm and unalterable experience has eſtabliſhed, the proof againſt a miracle, from the nature of the fact, is as entire as any argument from experience can be; whereas our experience of human veracity, which (according to him) is the ſole foundation of the evidence of teſtimony, is far from being uniform, and can never preponderate againſt that experience which admits of no exception." This boaſted and plauſible argument has with equal candour and acuteneſs been examined by Dr Campbell (in his *Diſſertation on Miracles*); who juſtly obſerves, that ſo far is experience from being the ſole foundation of the evidence of teſtimony, that, on the contrary, teſtimony is the ſole foundation of by far the greater part of what Mr Hume calls firm and unalterable experience; and that if, in certain circumſtances, we did not give an implicit faith to teſtimony, our knowledge of events would be confined to thoſe which had fallen under the immediate obſervation of our own ſenſes. For a ſhort view of this celebrated controverſy, in which the Chriſtian ſo completely vanquiſhes the philoſopher, ſee the article ABRIDGEMENT. But though Dr Campbell has expoſed the ſophiſtry of his opponent's reaſoning, and overturned the *principles* from which he reaſons, we are perſuaded that he might ſafely have joined iſſue with him upon thoſe very principles. The teſtimony upon which we receive the Goſpel miracles is preciſely of that kind which Mr Hume has acknowledged ſufficient to eſtabliſh even a miracle. "No teſtimony (ſays he) is ſufficient to eſtabliſh a miracle, unleſs the teſtimony be of ſuch a kind that its *falſehood* would be *more miraculous* than the fact which it endeavours to eſtabliſh. When one tells me that he ſaw a dead man reſtored to life, I immediately conſider with myſelf whether it be more probable, that this perſon ſhould either deceive or be deceived, or that the fact which he relates ſhould really have happened. I weigh the one miracle againſt the other; and according to the ſuperiority which I diſcover I pronounce my deciſion, and always reject the greater miracle." In this paſſage every reader may remark what did not eſcape the perſpicacious eye of Dr Campbell, a ſtrange confuſion of terms: but as all miracles are equally eaſy to the Almighty; and as Mr Hume has elſewhere obſerved, "that the raiſing of a feather, when the wind wants ever ſo little of a force requiſite for that purpoſe, is as real a miracle as the raiſing of a houſe or a ſhip into the air;" candour obliges us to ſuppoſe, that by talking of greater and leſs miracles, and of always rejecting the *greater*, he meant nothing more, but that of two deviations from the known laws of nature, he always rejects that which in itſelf is leaſt probable. If, then, we can ſhow, that the teſtimony given by the apoſtles and other firſt preachers of Chriſtianity to the miracles of their maſter, would, upon the ſuppoſition that thoſe miracles were not really performed, have been as great a deviation from the known laws of nature as the miracles themſelves, the balance muſt be conſidered as evenly poiſed by oppoſite miracles; and whilſt it continues ſo, the judgment muſt remain in a ſtate of ſuſpenſe. But if it ſhall appear, that in this caſe the falſe teſtimony would have been a deviation from the laws of nature, leſs probable in itſelf than the miracles recorded in the Goſpels, the balance will be inſtantly deſtroyed; and by Mr Hume's maxim we ſhall be obliged to reject the ſuppoſition of falſehood in the teſtimony of the apoſtles, and admit the miracles of Chriſt to have been really performed. In this argument we need not waſte time in proving that thoſe miracles, as they are repreſented in the new Teſtament, were of ſuch a nature, and performed before ſo many witneſſes, that no impoſition could poſſibly be practiſed on the ſenſes of thoſe who affirm that they were preſent. From every page of the Goſpels this is ſo evident, that the philoſophical adverſaries of the Chriſtian faith never ſuppoſe the apoſtles to have been themſelves deceived, but boldly accuſe them of bearing falſe witneſs. But if this accuſation be well founded, their teſtimony itſelf is as great a miracle as any which they record of themſelves or of their Maſter. It has been ſhown elſewhere (ſee Metaphysics, *Sect.* I—X.) that by the law of aſſociation, which is one of the laws of nature, mankind, in the very proceſs of learning to ſpeak, neceſſarily learn to ſpeak the truth; that *ideas* and *relations* are in the mind of every man ſo cloſely aſſociated with the words by which they are expreſſed in his native tongue, and in every other language of which he is maſter, that the one cannot be entirely ſeparated from the other; that therefore no man can on any occaſion ſpeak falſehood without ſome *effort*; that by no effort can a man give conſiſtency to any premeditated detail of falſehood, if it be of any length, and include a number of particulars; and that it is ſtill leſs poſſible for ſeveral men to agree in ſuch a detail, when at a diſtance from each other, and croſs-queſtioned by their enemies. It therefore follows, if the teſtimony of the apoſtles to their own and their Maſter's miracles be falſe, either that they muſt have concerted a conſiſtent ſcheme of falſehood, and agreed to publiſh it at every hazard; or that God, or ſome powerful agent appointed by him, muſt have diſſolved all the aſſociations formed in their minds between the ideas of ſenſe and the words of language, and arbitrarily formed new aſſociations, all in exact conformity to each other, but all in direct contradiction to truth. One or other of theſe events muſt have taken place, becauſe, upon the ſuppoſition of falſehood, there is no other alternative. But ſuch a diſſolution and formation of aſſociations as the latter implies, muſt, to every man who ſhall attentively conſider it, appear to be as real a miracle, and to require as great an exertion of power; as the reſurrection of the dead. Nor is the ſuppoſed voluntary agreement of the apoſtles in a ſcheme of falſehood an event leſs miraculous. The very *reſolution* of the apoſtles to propagate the belief of falſe miracles in ſupport of *ſuch* a religion as that which is taught in the New Teſtament, is as great a miracle as human imagination can eaſily conceive. When they formed this deſign, either they muſt have hoped to ſucceed, or they muſt have foreſeen that they ſhould fail in their undertaking; and in either caſe, they *choſe evil for its own ſake*. They could not, if they foreſaw that they ſhould fail, look for any thing but that contempt, diſgrace, and perſecution, which were the inevitable conſequences of an unſucceſsful endeavour to overthrow the eſtabliſhed religion. Nor could their proſpects be brighter upon the ſuppoſition of their ſucceſs. As they knew themſelves to be falſe witneſſes and impious deceivers, they could have no hopes beyond the grave; and by determining to oppoſe all the religious ſyſtems, ſuperſtitions, and prejudices of the age in which they lived, they wilfully expoſed themſelves to inevitable miſery in the preſent life to inſult and impriſonment, to ſtripes and death Nor can it be ſaid that they might look forwar to power and affluence when they ſhould, throug ſufferings, have converted their countrymen; fo ſ deſirous were they of obtaining nothing but *miſer* as the end of their miſſion, that they made thei own perſecution a *teſt* of the truth of their doc trines. They introduced the Maſter, from whom they pretended to have received theſe doctrines, a telling them, that "they were ſent forth as ſhee in the midſt of wolves; that they ſhould be delivered up to councils, and ſcourged in ſynagogues that they ſhould be hated of all men for his name' ſake; that the brother ſhould deliver up the brother to death, and the father the child; and tha he who took not up his croſs and followed afte him was not worthy of him." The very ſyſtem of religion, therefore, which they invented an reſolved to impoſe upon mankind, was ſo contri ved, that the worldly proſperity of its firſt preach ers, and even their exemption from perſecution was incompatible with its ſucceſs. Had theſ clear predictions of the Author of that religion under whom the apoſtles acted only as miniſter not been verified, all mankind muſt have perce ved that their pretence to inſpiration was falſe and that Chriſtianity was a ſcandalous and impudent impoſture. All this the apoſtles could no but foreſee, when they formed their plan for deluding the world. Whence it follows, that whe they reſolved to ſupport their pretended revela tion by an appeal to forged miracles, they wilful ly, and with their eyes open, expoſed themſelve to inevitable miſery, whether they ſhould ſuccee or fail in their enterpriſe; and that they concert ed their meaſures ſo as not to admit of a poſſibi lity of recompence to themſelves, either in thi life or in that which is to come. But if there b a law of nature, for the reality of which we hav better evidence than we have for others, it is, tha "no man can chooſe miſery for its *own ſake*," o make the acquiſition of it the ultimate object o his purſuit. The exiſtence of other laws of natu we know by teſtimony and our own obſervatio of their effects. The exiſtence of this law known to us not only by theſe means, but alſo b the ſtill clearer and more concluſive evidence our own conſciouſneſs. Thus, then, do miracl force themſelves upon our aſſent in every poſſib view which we can take of this intereſting ſubjec If the teſtimony of the firſt preachers of Chriſti nity was true, the miracles recorded in the Go pel were certainly performed, and the doctrin of our religion are derived from heaven. But that teſtimony was falſe, either God muſt hav miraculouſly effaced from the minds of thoſe b whom it was given all the aſſociations formed b tween their ſenſible ideas and the words of lan guage, or he muſt have endowed thoſe men wi the gift of preſcience, and have impelled them fabricate a pretended revelation for the purpo of deceiving the world, and involving themſelve in certain and foreſeen deſtruction. The pow neceſſary to perform the one ſeries of theſe mir cles may be as great as that which would be re quiſite for the performance of the other; and con

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ſidered merely as exertions of preternatural power, they may ſeem to balance each other, and to hold the mind in a ſtate of ſuſpence. But when we take into conſideration the different purpoſes for which theſe oppoſite miracles were wrought, the balance is inſtantly deſtroyed. The miracles recorded in the Goſpels, if real, were wrought in ſupport of a revelation, which, in the opinion of all by whom it is received, has brought to light many important truths, which could not otherwiſe have been made known to men; and which, by the confeſſion of its adverſaries, contains the pureſt moral precepts by which the conduct of mankind was ever directed. The oppoſite ſeries of miracles, if real, was performed to enable, and even to compel, a company of Jews, of the loweſt rank and of the narroweſt education, to fabricate, with the view of inevitable deſtruction to themſelves, a conſiſtent ſcheme of falſehood, and by an appeal to forged miracles to impoſe it upon the world as a revelation from heaven. The object of the former miracles is worthy of a God of infinite wiſdom, goodneſs, and power. The object of the latter is abſolutely inconſiſtent with infinite wiſdom and goodneſs. Whence it follows, that the ſuppoſition of the apoſtles bearing *falſe* teſtimony to the miracles of their Maſter, implies a ſeries of deviations from the laws of nature *infinitely leſs probable* in themſelves than thoſe miracles: and therefore, by Mr Hume's maxim, we muſt neceſſarily reject the ſuppoſition of falſehood in the teſtimony, and admit the reality of the miracles. So true is it, that for the reality of the Goſpel miracles we have evidence as convincing to the reflecting mind, as thoſe had who were contemporary with Chriſt and his apoſtles, and were ocular witneſſes to their mighty works." *Enc. Brit.*

* **MIRACULOUS.** *adj.* [*miraculeux*, Fr. from *miracle.*] Done by miracle; produced by miracle; effected by power more than natural.—Arithmetical progreſſion might eaſily demonſtrate how faſt mankind would increaſe, overpaſſing as *miraculous*, though indeed natural, that example of the Iſraelites, who were multiplied in 215 years from 70 to 600,000 able men. *Raleigh's Eſſays.*—

Reſtore this day, for thy great name,
Unto his ancient and *miraculous* right. *Herbert.*

Why this ſtrength
Miraculous yet remaining in thoſe locks? *Milt.*

—At the firſt planting of the Chriſtian religion, God was pleaſed to accompany it with a *miraculous* power. *Tillotſon.*

* **MIRACULOUSLY.** *adv.* [from *miraculous.*] By miracle; by power above that of nature.—It was a ſingular providence of God, to draw thoſe northern heathen nations down into thoſe Chriſtian parts, where they might receive Chriſtianity, and to mingle nations ſo remote *miraculouſly*, to make the blood and kindred of all people, and each to have knowledge of him. *Spenſer on Ireland.*—Turnus was to be ſlain that very day; and Æneas, wounded as he was, could not have engaged him in ſingle combat, unleſs his hurt had been *miraculouſly* healed. *Dryden.*

* **MIRACULOUSNESS.** *n. ſ.* [from *miraculous.*] The ſtate of being effected by miracle; ſuperiority to natural power.

* **MIRADOR.** *n, ſ.* [Span. from *mirar*, to look.] A balcony; a gallery whence ladies ſee ſhews.—

Meantime your valiant ſon, who had before
Gain'd fame, rode round, to ev'ry *mirador*;
Beneath each lady's ſtand a ſtop he made,
And bowing, took th' applauſes which they paid. *Dryden.*

MIRADOUX, a town of France, in the dep. of Gers, 7 miles NE. of Lectoure, and 13½ S. of Agen.

MIRÆUS, Aubertus, a learned divine, born at Bruſſels in 1573. He was librarian and almoner to Albert D. of Auſtria. He wrote ſeveral eſteemed works; particularly *Opera Hiſtorica et Diplomatica;* 2 vols. fol. He died in 1640.

MIRAGOANE, a town of Hiſpaniola, on the S. ſide of Leogane, 69 miles W. by S. of Port au Prince, and 93 E. of Jeremie. Lat. 18. 27. N.

MIRAMBEAU, a town of France, in the dep. of the Lower Charente, 12 miles S. of Pons.

MIRAMBEL, a town of Spain, in Arragon.

MIRAMICHI, a port, bay, and river, on the NE. coaſt of New Brunſwick. There is a ſalmon fiſhery on the river.

MIRAMONT, a town of France, in the dep. of Lot and Garonne, 10 miles NE. of Marmande.

(1.) **MIRANDA**, or Eo, a river of Spain, which riſes in the mountains of Aſturias, ſeparates that province from Galicia, and runs into the Atlantic, a little N. of Rivadeo.

(2.) **Miranda**, a town of Naples, in Moliſe.

(3.) **Miranda**, a town of Spain, in Navarre.

(4.) **Miranda de Corvo**, a town of Portugal, in the prov. of Beira, containing 2700 people; 15 miles S. of Coimbra.

(5.) **Miranda de Duero**, a ſtrong town of Portugal, and capital of the province of Tra-los-Montes, with a biſhop's ſee. It is well fortified, and ſeated on a rock near the confluence of the river Douro and Freſna. Lon. 5. 40. W. Lat. 41. 30. N.

(6.) **Miranda de Ebro**, a town of Spain, in Old Caſtile, with a ſtrong caſtle; ſeated in a country that produces excellent wine. The town is divided into two parts by the river, over which there is a handſome bridge. Lon. 3. 10. W. Lat. 42. 52. N.

MIRANDE, a town of France, in the dep. of Gers, and ci-devant prov. of Gaſcony; late capital of the county of Aſtarac; ſeated on a mountain near the Baiſe. Wool, downs, and feathers are its chief articles of trade. It is 15 miles SW. of Auch, and 340 of Paris. Lon. 0. 21. E. Lat. 42. 53. N.

MIRANDELA, a town of Portugal, in Tras-los-Montes, 30 miles SW. of Braganza.

MIRANDOL, a town of France, in the department of the Tarn, 12 miles N. of Alby.

(1.) **MIRANDOLA**, a ci-devant principality of Italy, between the late duchies of Mantua and Modena, nearly ſurrounded by the latter. It was raiſed from a county to a duchy in 1619, and was governed by dukes of the houſe of Pico or Picus till the beginning of the 18th century, when the laſt duke, Francis Maria, joining with Spain in the war about the Spaniſh ſucceſſion, he was put under the ban of the empire, and the duchy was transferred for a million of guilders to the D. of Modena in 1711, and confirmed to him by the treaty of Aix-la-Chapelle. It is now included in the kingdom of Italy, and department of Panaro.

(2.) **Mirandola**, a town of Italy in the dep. of Panaro, and diſtrict of Modena; late capital of the above duchy. It is a pretty large place, well fortified, and has alſo a ſtrong citadel and fort. It has been ſeveral times taken and retaken; particularly by the king of Sardinia in 1742. It lies 14 miles NE. of Modena, and 20 SE. of Mantua. Lon. 11. 5. E. Lat. 44. 52. N.

(3, 4.) **Mirandola.** See Picus, N° II. and III.

MIRANO, a town in the ci-devant Venetian province of Paduano; 12 miles NE. of Padua.

MIRAVALLES, a town of Spain, in Biſcay.

(1.) **MIRAVEL**, a town of Spain, in Catalonia, 13 miles N. of Tortoſa.

(2.) **Miravel**, a town of Spain, in New Caſtile, with a ſtrong caſtle; 12 miles S. of Placentia.

MIRAUMONT, a town of France, in the dep. of the Somme; 13½ miles NW. of Peronne.

MIRAY, a bay on the coaſt of Cape Breton, ſecure from all winds. Lon. 59. 49. E. Lat. 46. 5. N.

(1.) * **MIRE.** *n. ſ.* [*moer*, Dutch.] Mud; dirt at the bottom of water.—

He his rider from her lofty ſteed
Would have caſt down, and trod in dirty *mire*.
Spenſer.

—Here's that, which is too weak to be a ſinner, honeſt water, which ne'er left man i' th' *mire*. *Shak. Timon of Athens.*—

I'm Ralph himſelf, your truſty ſquire,
Wh' has dragg'd your donſhip out o' th' *mire*.
Hudibras.

—I appeal to any man's reaſon, whether it be not better that there ſhould be a diſtinction of land and ſea, than that all ſhould be *mire* and water. *More against Atheiſm.*—

Now plung'd in *mire*, now by ſharp brambles
torn. *Roſcommon.*

(2.) * **Mire.** *n. ſ.* [*myr*, Welſh; *myra*, Saxon; *mier*, Dutch.] An ant: a piſmire.—

* *To* **Mire.** *v. a.* [from the noun.] To whelm in the mud; to ſoil with mud.—

Why had I not, with charitable hand,
Took up a beggar's iſſue at my gates?
Who ſmeered thus, and *mir'd* with infamy,
I might have ſaid no part of it is mine. *Shak.*

(1.) **MIREBEAU**, a town of France, in the dep. of Cote d'Or, 13½ miles NE. of Dijon, and 13½ NW. of Auxonne.

(2.) **Mirebeau**, a town of France, in the dep. of Vienne, famous for beautiful and ſtrong aſſes; 16 miles NW. of Poitiers, and 175 SW. of Paris. Lon. 0. 19. E. Lat. 46. 46. N.

MIREBEL, a town of France, in the dept. of the Iſere; 10 miles N. of Grenoble.

MIRECOURT, a town of France, in the dep. of the Voſges, and ci-devant province of Lorrain; famous for violins and fine laces; ſeated on the Modon, 27 miles from Nanci, and 30 SE. of Toul. Lon. 6. 14. E. Lat. 48. 15. N.

Mire-crow, or **Pewit.** See Larus, N° 9.

MIREDEN. See Meriden.

MIREFLEUR, a town of France, in the dep. of Puy de Dome; 6 miles SW. of Billom, and 7½ SE. of Clermont.

(1.) **MIREMONT**, a town of France, in the dep. of Dordogne, and late province of Perigord, near the Vizere; 15 miles E. of Bergerac, and 10 SW. of Montignac.

(2.) **Miremont**, a town of France, in the dep of Upper Garonne; 7½ miles SE. of Muret.

MIREPEX, a town of France, in the dep. the Lower Pyrenees; 9 miles SE. of Pau.

MIREPEYSSET, a town of France, in the de of the Aude: 9 miles NW. of Narbonne.

MIREPOIX, a town of France, in the dep. Arriege, and ci-devant prov. of Bigorre; ſeated the Gers, 15 miles N. of Folx, and 40 SE. Toulouſe. Lon. 1. 56. E. Lat. 43. 7. N.

MIREVAUX, a town of France, in the dep. the Herault, 6 miles SW. of Montpelier.

(1.) **MIREVELT**, Michael Janſen, portrai painter, was the ſon of a goldſmith, and born Delft in 1568. His father placed him with one the Wierixes, of whom he learned to draw crayons and to engrave. At the age of 12 he e ecuted a print of the Samaritan woman; and n long after a figure of Judith holding Holofernes head. Theſe performances attracted the notic of Anthony Blockland, an hiſtorical painter great note; and under his inſtructions Mirevc improved. He was very ſucceſsful in paintin hiſtory; but finding portraits more profitable, h applied himſelf to portrait painting only. His r putation became ſo great, that he exacted wh price he pleaſed, never taking leſs than 150 flori a piece. His portraits are exceedingly numerou and many of them were excellently engraved b William James Delft, his near relation, a ve ſkilful artiſt. He died in 1641.

(2.) **Mirevelt**, Peter, ſon of Michael, w born at Delft in 1596, and died in 1632. In h manner of deſign, ſtyle of colouring, and delicac of pencil, he reſembled his father; and by t beſt judges was accounted in no degree inferi to him.

MIRGA, a town of Perſia, in Adirbeitzan; miles S. of Tauris.

MIRIALEM. See Bashaw, § 2.

MIRIAM, ſiſter of Aaron and Moſes, mak two or three remarkable appearances in ſcriptu It was owing to her that her mother was emp ed by Pharaoh's daughter as nurſe to Moſes. S put herſelf at the head of the women of Iſrael ter there paſſage over the Red Sea, in order to fi the ſong which the men had ſung before. S joined with her brother Aaron in murmuri againſt Moſes, and was ſeverely chaſtiſed for th action; for ſhe became leprous, and continued parate from the reſt without the camp for ſev days. She died before her brothers, though in t ſame year, and was buried at the public expenſ

MIRIK, a river of S. Wales, in Cardiganſhi which runs into the Tivy.

* **MIRINESS.** *n. ſ.* [from *miry*.] Dirtineſs; neſs of mire.

MIRIOSITO, a town of Turkey, in Roma

* **MIRKSOME.** *adj.* [*morck*, dark, Daniſh. the derivatives of this ſet, no regular orthograp is obſerved: it is common to write *murky*, which the reſt ought to conform.] Dark; obſcu

Thro' *mirkſome* air her ready way ſhe mak
Fairy Qu

MIRMANDE, a town of France, in the de of Drome; 15 miles S. of Valence.

MIROIR, a town of France, in the dep. of Mont Blanc, and ci-devant duchy of Chablais in Savoy, on the lake of Geneva; 2 miles W. of Evian, and 23 NE. of Geneva.

MIROPEL, a town of Poland in Volhynia.

MIROUART, a town of France, in the dep. of Forets, and cidevant duchy of Luxemburg, on the Homme; 5 miles WNW. of St Hubert.

MIROW, a town of Germany in Mecklenburg, 11 miles N. of Spandau.

(1.) * MIRROR. *n. ſ.* [*miroir*, French; *mirar*, Spaniſh, to look.] 1. A looking-glaſs; any thing which exhibits repreſentations of objects by reflection.—

And in his waters which your *mirror* make,
Behold your faces. *Spenſer's Epith.*

An inward light,
Whereby my ſoul, as by a *mirror* true,
Of her own form may take a perfect ſight.
Davies.

Leſs bright the moon,
But oppoſite in levell'd Weſt was ſet
His *mirror*, with full face borrowing her light
From him. *Milton's Paradiſe Loſt.*

Mirroir of poets, *mirroir* of our age. *Waller.*

By chance he ſpy'd a *mirroir* while he ſpoke,
And gazing there beheld his alter'd look. *Dryd.*

In the clear *mirroir* of thy ruling ſtar,
I ſaw, alas! ſome dread event impend. *Pope.*

2. It is uſed for pattern; for that on which the eye ought to be fixed; as, men look in a glaſs to adjuſt their mein or dreſs; an example; an archetype.—To expreſs ſome abſolute ſhape or *mirror* always before her. *Hooker.*—

O goddeſs, heavenly bright,
Mirrour of grace and majeſty divine. *F. Queen.*

How far'ſt thou, *mirror* of all martial men?
Shak.

Mirroir of ancient faith in early youth. *Dryd.*

(2.) MIRROR, (§ 1. *def.* 1.) is alſo uſed for any poliſhed body, that forms the images of objects, by reflection of the rays of light. See CATOPTRICS, *Index*; and REFLECTION. Mirrors are either plain, convex, or concave. The firſt reflect the rays of light in a direction exactly ſimilar to that in which they fall upon them, and therefore repreſent bodies of their natural magnitude. The convex ones make the rays diverge much more than before reflection, and therefore greatly diminiſh the images of thoſe objects which they ſhow: while the concave ones, by collecting the rays into a focus, not only magnify the objects they ſhow, but will burn very fiercely when expoſed to the rays of the ſun; and hence they are commonly known by the name of *burning mirrors.* See BURNING, §. 13—16. In ancient times mirrors were made of ſome kind of metal; and from a paſſage in the Moſaic writings we learn that the mirrors uſed by the Jewiſh women were made of braſs. The Jews certainly had been taught to uſe that kind of mirrors by the Egyptians; whence it is probable that brazen mirrors were the firſt kind uſed in the world. Any metal, indeed, when well poliſhed, will reflect very powerfully; but ſilver reflects the moſt, though it is too expenſive a material for common uſe. Gold alſo is very powerful; and metals, or even wood, gilded and poliſhed, will act very powerfully as burning mirrors. Even poliſhed ivory, or ſtraw nicely plaited together, will form mirrors capable of burning, if on a large ſcale. Since the invention of glaſs, and the application of quickſilver to it, became generally known, it hath been univerſally employed for thoſe plain mirrors uſed as ornaments to houſes; but in making reflecting teleſcopes they have been found much inferior to metallic ones. It doth not appear that the ſame ſuperiority belongs to the metalline burning mirrors, conſidered merely as burning glaſſes; ſince the mirror with which Mr Macquer melted platina, though only 22 inches diameter, and which was made of quickſilvered glaſs, produced much greater effects than M. Villette's metalline ſpeculum, which conſiderably exceeded it in ſize. It is very probable, however, that this mirror of M. Villette's was by no means ſo well poliſhed as it ought to have been; as the art of preparing the metal for taking the fineſt poliſh has but lately been diſcovered and publiſhed in the *Philoſ. Tranſ.* by Mr Mudge. See OPTICS.

(3.) MIRRORS, METHODS OF BLOWING, CASTING, GRINDING and POLISHING GLASS FOR. See GLASS-MAKING, *Sect.* XII and XIII.

* MIRROR-STONE. *n. ſ.* [*ſelenites*, Lat.] A kind of tranſparent ſtone. *Ainſworth.*

* MIRTH. *n. ſ.* [*myrhte*, Saxon.] Merriment; jollity; gaiety; laughter.—

To give a kingdom for a *mirth*, to ſit,
And keep the turn of tippling with a ſlave.
Shak.

His eye begets occaſion for his wit;
For every object that the one doth catch,
The other turns to a *mirth*-moving jeſt. *Shak.*

—Moſt of the appearing *mirth* in the world is not *mirth* but art; the wounded ſpirit is not ſeen. *South.*

With genial joy to warm the ſoul,
Bright Helen mix'd a *mirth* inſpiring bowel.
Pope.

* MIRTHFUL. *adj.* [*mirth* and *full.*] Merry; gay; cheerful.—

No ſimple word,
That ſhall be utter'd at our *mirthful* board,
Shall make us ſad next morning. *Ben. Johnſon.*

The feaſt was ſerv'd; the bowl was crown'd;
To the king's pleaſure went the *mirthful* round.
Prior.

* MIRTHLESS. *adj.* [from *mirth.*] Joyleſs; cheerleſs.—

* MIRY, *adj.* [from *mire.*] 1. Deep in mud; muddy.—Thou ſhould'ſt have heard how her horſe fell, and ſhe under her horſe; thou ſhould'ſt have heard in how *miry* a place, how ſhe was bemoiled. *Shak.*—All men who lived lazy lives, and died natural deaths, by ſickneſs or by age, went into vaſt caves under-ground, all dark and *miry*, full of noiſome creatures, and there grovelled in endleſs ſtench and miſery. *Temple.*—

Deep, through a *miry* lane ſhe pick'd her way,
Above her ancle roſe the chalky clay. *Gay.*

So have I ſeen ill-coupled hounds
Drag diff'rent ways in *miry* grounds. *Swift.*

2. Conſiſting of mire.—

How they are ſtain'd like meadows, yet not dry,
With *miry* ſlime left on them by a flood. *Shak.*

* MIS, an inſeparable particle uſed in compoſition

poſition to mark an ill ſenſe, or depravation of the meaning: as, *chance*, luck; *miſchance*, ill luck; *computation*, reckoning; *miſcomputation*, falſe reckoning; *to like*, to be pleaſed; *to miſlike*, to be offended; from *mes* in Teutonick and French, uſed in the ſame ſenſe. Of this it is difficult to give all the examples; but thoſe that follow will ſufficiently explain it.

* MISACCEPTATION. *n. ſ.* [*mis* and *acceptation*.] The act of taking in a wrong ſenſe.

(1.) * MISADVENTURE. *n. ſ.* [*meſaventure*, Fr. *mis* and *adventure*.] Miſchance; misfortune; ill luck; bad fortune.—

Your looks are pale and wild, and do import
Some *miſadventure*. *Shak.*

—When a commander, either upon neceſſity or *miſadventure*, falleth into danger, it much advanceth both his reputation and enterprize, if bravely he behaveth himſelf. *Hayward.*—The body conſiſted, after all the loſſes and *miſadventures*, of no leſs than 6000 feet. *Clarendon.*—Diſtinguiſh betwixt *miſadventure* and deſign. *L'Eſtrange.*—The trouble of a *miſadventure* now and then, that reaches not his innocence or reputation, may not be an ill way to teach him more caution. *Locke.*

(2.) MISADVENTURE, in common language, ſignifies any unlucky accident which takes place without being foreſeen.

(3.) MISADVENTURE, in law, has an eſpecial ſignification for the killing a man partly by negligence, and partly by chance. See HOMICIDE, § I, i.

* MISADVENTURED. *adj.* [from *miſadventure*.] Unfortunate.—

From forth the fatal loins of theſe two foes,
A pair of ſtarcroſt lovers take their life;
Whoſe *miſadventur'd* piteous overthrows
Do with their death bury their parents ſtrife.
Shak.

* MISADVISED. *adj.* [*mis* and *adviſed*.] Ill directed.

MISAGNO, a town of Naples in Otranto.

* MISAIMED. *adj.* [*mis* and *aim*.] Not aimed rightly.—

The idle ſtroke enforcing furious way,
Miſſing the mark of his *miſaimed* ſight,
Did fall to ground. *F. Queen.*

MISANI, a town of France, in the iſland and department of Corſica; 6 miles W. of Cervoine.

* MISANTHROPE. } *n. ſ.* [*miſanthrope*, Fr.
* MISANTHROPOS. } μισανθρωπος.] A hater of mankind.—

I am *miſanthropos*, and hate mankind. *Shak.*
Alas, poor dean! his only ſcope
Was to be held a *miſanthrope*. *Swift.*

(1.) * MISANTHROPY. *n. ſ.* [*miſanthropie*, Fr. from *miſanthrope*.] Hatred of mankind.

(2.) MISANTHROPY is derived from μισος, *hatred*, and ανθρωπος, *a man*.

* MISAPPLICATION. *n. ſ.* [*mis* and *application*.] Application to a wrong purpoſe.—The *miſapplication* of the act of one unto another, hath made ſome doubt thereof. *Brown.*—Perſons diſpoſed to do good can entertain no ſuſpicions of the *miſapplication* of their bounty. *Atterbury.*—It is our duty to be provident for the future, and to guard againſt whatever may lead us into *miſapplications* of it. *Rogers.*

* *To* MISAPPLY. *v. a.* [*mis* and *apply*.] T
apply to wrong purpoſes.—

Virtue itſelf turns vice, being *miſapplied*,
And vice ſometimes by action's dignified. *Sha*

—The holy treaſure was to be reſerved and
ſued for holy uſes, and not to be *miſapplied* to a
other ends. *Howel.*—He that knows, that whit
neſs is the name of that colour he has obſerved
ſnow, will not *miſapply* that word as long as
retains that idea. *Locke.*

* *To* MISAPPREHEND. *v. a.* [*mis* and *a*
prehend.] Not to underſtand rightly.—That yo
reaſonings may loſe none of their force by m
miſapprehending or miſrepreſenting them, I ſh
give the reader your arguments. *Locke.*

* MISAPPREHENSION. *n. ſ.* [*mis* and *a*
prehenſion.] Miſtake; not right apprehenſion.-
What we have to ſay under this head, will equa
ly concern our *miſapprehenſions* and errors. *Glan*

* *To* MISASCRIBE. *v. a.* [*mis* and *aſcribe*.] T
aſcribe falſely.—That may be *miſaſcribed* to a
which is the bare production of nature *Boyle.*

* *To* MISASSIGN. *v. a.* [*mis* and *aſſign*.] T
aſſign erroneouſly.—We have not *miſaſſigned* th
cauſe of this phenomenon. *Boyle.*

* *To* MISBECOME. *v. a.* [*mis* and *become*
Not to become; to be unſeemly; not to ſuit.-
Impoſſible loves need not *miſbecome* me. *Sidney.*-

Any thing that may not *miſbecome*
The mighty ſender. *Sha*

—Thoſe *miſbecoming* and diſengenuous ways
ſhifting in the world muſt be unlearned to mak
way for better principles. *Locke.*

Thy father will not act what *miſbecomes* him
Addiſo

* MISBEGOT. } *adj.* [*begot* or *begott*
* MISBEGOTTEN. } with *mis*.] *Unlawfu*
or irregularly begotten.—

Contaminated, baſe,
And *miſbegotten* blood, I ſpill of thine. *Sha*

Valour, which, indeed,
Is valour *miſbegot*, and came into the world
When ſects and factions were but newly born.
Shak

The *miſbegotten* infant grows,
And, ripe for birth, diſtends with deadly thro
The ſwelling rind. *Dryden*

* *To* MISBEHAVE. *v. n.* [*mis* and *behave*.] T
act ill or improperly.

* MISBEHAVED. *adj.* [*mis* and *behaved*.] Un
taught; ill-bred; uncivil.—

Happineſs courts thee in her beſt array;
But, like a *miſbehav'd* and ſullen wench,
Thou pout'ſt upon thy fortune and thy love.
Shak

* MISBEHAVIOUR. *n. ſ.* [*mis* and *behaviour*.
Ill conduct; bad practice.—The *miſbehaviour* o
particular perſons does not at all affect their cauſ
Addiſon.

* MISBELIEF. *n. ſ.* [*mis* and *belief*.] Falſe re
ligion; a wrong belief.

* MISBELIEVER, *n. ſ.* [*mis* and *believer*.] On
that holds a falſe religion, or believes wrongly.—

Yes, if I drew it with a curſt intent
To take a *miſbeliever* to my bed,
It muſt be ſo. *Dryden*

* *To* MISCAL. *v. a.* [*mis* and *call*.]. To nam
improperly.—

My heart will ſigh when I *miſcal* it ſo. *Shak.* —We ſhall not *miſcal* it, if we name it reaſon. *Glanville.*

What you *miſcal* their folly is their care.
Dryden.

* *To* MISCALCULATE. *v. a.* [*mis* and *calculate.*] To reckon wrong.—There may be, in ſuch a multitude of paſſages, ſeveral miſquoted, miſinterpreted, and *miſcalculated.* *Arbuthnot.*

MISCANELLO, a town of Naples, in the prov. of Baſilicata, 26 miles SE. of Potenza.

(1.) * MISCARRIAGE. *n. ſ.* [*mis* and *carriage.*] 1. Unhappy event of our undertaking; failure; ill conduct.—Reſolutions of reforming do not always ſatiſfy juſtice, nor prevent vengeance for former *miſcarriages.* *King Charles.*

When a counſellor, to ſave himſelf,
Would lay *miſcarriages* upon his prince,
Expoſing him to public rage and hate,
O, 'tis an act as infamouſly baſe,
As ſhould a common ſoldier ſculk behind,
And thruſt his general in the front of war. *Dryd.*

—If the neglect, or abuſe of the liberty he had, miſleads him, the *miſcarriages* that follow on it muſt be imputed to his own election. *Locke.*—A great part of that time which the inhabitants of the former earth had to ſpare, and whereof they made ſo ill uſe, was now employed in digging and plowing; and the exceſs of fertility, which contributed ſo much to their *miſcarriages,* was retracted and cut off. *Woodward's Nat. Hiſt.*

Your cures aloud you tell,
But wiſely your *miſcarriages* conceal. *Garth.*

—How, alas! will he appear in that awful day, when even the failings and *miſcarriages* of the righteous ſhall not be concealed. *Rogers.* 2. Abortion; act of bringing forth before the time.—There muſt be *miſcarriages* and abortions; for there died many women with child. *Graunt.*

(2.) Miscarriage. See Abortion, and Midwifery, *Part* I, *Sect.* X.

* MISCARRY, *v. n.* [*mis* and *carry.*] 1. To fail; not to have the intended event; not to ſucceed; to be loſt in an enterpriſe; not to reach the effect intended.—Have you not heard of Frederick, the great ſoldier, who *miſcarried* at ſea? *Shak.*

Our ſiſter's man is certainly *miſcarried.* *Shak.*
—It is determin'd, not concluded yet:
But ſo it muſt be if the king *miſcarry.* *Shak.*
If you *miſcarry,*
Your buſineſs of the world hath ſo an end,
And machination ceaſes. *Shak.*

—Sweet Baſſanio, my ſhips have all *miſcarried.* *Shak.*—I could mention ſome projects which I have brought to maturity, and others which have *miſcarried.* *Guardian.*—No wonder that this expedient ſhould ſo often *miſcarry.* *Swift.* 2. To have an abortion.—Give them a *miſcarying* womb and dry breaſts. *Hoſ.* ix. 14.—So many politick conceptions ſo elaborately formed and wrought, and grown at length ripe for a delivery, do yet, in the iſſue, *miſcarry* and prove abortive. *South.* —His wife *miſcarried;* but the abortion proved a female fœtus. *Pope and Arbuthnot.*—You have proved yourſelf more tender of another's embrios, than the fondeſt mothers are of their own; for you have preſerved every thing that I *miſcarried* of. *Pope.*

* *To* Miscast. *v. a.* [*mis* and *caſt.*] To take a wrong account of.—Men *miſcaſt* their days; for in their age they deduce the account, not from the day of their birth, but the year of our Lord wherein they were born. *Brown.*

* MISCELLANE. *n. ſ.* [*miſcellaneous,* Lat. This is corrupted into *maſlin* or *meſlin.*] Mixed corn: as, wheat and rye.—It is thought to be of uſe to make ſome *miſcellane* in corn; as if you ſow, a few beans with wheat, your wheat will be the better. *Bacon.*

MISCELLANEÆ. See Botany, *Index.*

* MISCELLANEOUS. *adj.* [*miſcellaneus,* Lat.] Mingled; compoſed of various kinds.—Being *miſcellaneous* in many things, he is to be received with ſuſpicion. *Brown.*—

A *miſcellaneous* rabble, who extol
Things vulgar. *Milton.*

* MISCELLANEOUSNESS. *n. ſ.* [*miſcellaneous.*] Compoſition of various kinds.

(1.) * MISCELLANY, *adj.* [*miſcillaneus,* Latin.] Mixed of various kinds.—A veteran army, compounded of *miſcellany* forces of all nations. *Bacon.*

(2.) * Miscellany. *n. ſ.* A maſs formed out of various kinds.—Having lent my name to recommend *miſcellanies,* or works of other men. *Pope.*—

When they have join'd their pericranies,
Out ſkips a book of *miſcellanies.* *Swift.*

(3.) Miscellany, Literary. See Magazine, § 7.

* MISCHANCE. *n. ſ.* [*mis* and *chance.*] Ill luck; ill fortune; misfortune; miſhap.—The lady Cecropia ſent him to excuſe the *miſchance* of her beaſts ranging in that dangerous ſort. *Sidney.*—She had ſtumbled upon ſuch *miſchances* as were little for the honour of her family. *Sidney.*—

View theſe letters, full of bad *miſchance,*
France is revolted. *Shak.*
Sleep, rock thy brain,
And never come *miſchance* between us twain.
Shak.

—It is a man's unhappineſs, his *miſchance* or calamity, but not his fault. *South.*

MISCHARON, a town of Perſia, in Irak.

* MISCHIEF. *n. ſ.* [*meſchef,* old French.] 1. Harm; hurt; whatever is ill and injuriouſly done. —The law in that caſe puniſheth the thought; for better is a *miſchief* than an inconvenience. *Spenſer.*

Come you murth'ring miniſters!
Wherever in your ſightleſs ſubſtances
You wait on nature's *miſchief.* *Shak.*

—Thy tongue deviſeth *miſchiefs.* *Pſal.* lii. 2.—

Was I the cauſe of *miſchief,* or the man,
Whoſe lawleſs luſt the fatal war began? *Æn.*

2. Ill conſequence; vexatious affair.—The *miſchief* was, theſe allies would never allow that the common enemy was ſubdued. *Swift.*

* *To* MISCHIEF. *v. a.* [from the noun.] To hurt; to harm; to injure.—If the greateſt inward heat be not governed by prudence, can it bring to our ſouls any benefit? rather it *miſchiefs* them. *Spratt.*

* MISCHIEFMAKER. *n. ſ.* [from *miſchief* and *make.*] One who cauſes miſchief.

* MISCHIEF-MAKING. *adj.* Cauſing harm.—

Come not thou with *miſchief-making* beauty,
To interpoſe between us. *Rowe.*

* MISCHIEVOUS, *adj.* [from *miſchief.*] 1. Harmful; hurtful; deſtructive; noxious; pernicious; injurious; wicked: uſed both of perſons and things.—This falſe, wily, doubling diſpoſition is intolerably *miſchievous* to ſociety. *South.*—

I'm but a half-ſtrain'd villain yet;
But mongrel *miſchievous.* *Dryden.*

—If he did not look after their maſter, he would do ſome very *miſchievous* thing. *Hiſt. of J. Bull.* 2. Spiteful; malicious. *Ainſworth.*

* MISCHIEVOUSLY, *adj.* [from *miſchief.*] Noxiouſly; hurtfully; wickedly.—

—A harden'd felon took a pride
To work more *miſchievouſly* ſlow,
And plundered firſt, and then deſtroy'd. *Dryd.*

* MISCHIEVOUSNESS. *n. ſ.* [from *miſchievous.*] Hurtfulneſs; perniciouſneſs; wickedneſs.—Compare the harmleſſneſs, the modeſty, and the ingenuous pliableneſs, which is in youth, with the *miſchievouſneſs*, the craft, the falſehood, and the confirmed obſtinacy found in an aged, long-practiſed ſinner. *South.*

MISCHKA, a river of Ruſſia, in the country of the Coſſacs, which runs into the Don.

MISCHKIN, a town of Ruſſia, in Jaroſlaw, 60 miles W. of Jaroſlaw. Lon. 58. 8. E. Ferro. Lat. 58. 42. N.

MISCHNA, or MISNA, [from שנה, *iteravit*, i. e. he repeated,] the firſt part of the Jewiſh Talmud. The Miſchna contains the text; and the Gemara, which is the 2d part of the Talmud, contains the commentaries. See GEMARA. The Miſchna conſiſts of various traditions of the Jews, and of explanations of ſeveral paſſages of ſcripture: theſe traditions, ſerving as an explication of the written law, and ſupplement to it, are ſaid to have been delivered to Moſes during his abode on the Mount; which he afterwards communicated to Aaron, Eleazar, and Joſhua. By theſe they were tranſmitted to the 70 elders, by them to the prophets, who communicated them to the men of the great ſanhedrim, from whom the wiſe men of Jeruſalem and Babylon received them. According to Prideaux, they paſſed from Jeremiah to Baruch, from him to Ezra, and from Ezra to the men of the great ſynagogue, the laſt of whom was Simon the Juſt; who delivered them to Antigonus of Socho: and from him they came down in regular ſucceſſion to Simeon, who took our Saviour in his arms; to Gamaliel, by whom Paul was educated; and laſt of all to Rabbi Judah the Holy, who committed them to writing in the Miſchna. But Dr Prideaux, rejecting this Jewiſh fiction, obſerves, that after the death of Simeon the Juſt, about A. A. C. 299, the Miſchnical doctors aroſe, who, by their comments and concluſions, added to the number of thoſe traditions which had been received by Ezra and the men of the great ſynagogue; ſo that towards the middle of the 2d century, under Antoninus Pius, it was found neceſſary to commit theſe traditions to writing; eſpecially as their country had conſiderably ſuffered under Adrian, and many of their ſchools had been diſſolved, and their learned men cut off; and therefore the uſual method of preſerving their traditions had failed. Rabbi Judah on this occaſion being rector of the ſchool
Tiberias, and preſident of the ſanhedrim in th
place, undertook the work, and compiled it in
books, each conſiſting of ſeveral tracts, which alt
gether make up the number of 63. *Prid. Conn*
vol. ii. p. 468, &c. ed. 9. This learned auth
computes, that the Miſchna was compoſed abo
A. D. 150; but Dr Lightfoot ſays, that Rabbi J
dah compiled the Miſchna about A. D. 190,
the end of the reign of Commodus; or, as ſom
compute, A. D. 220. Dr Lardner is of opinio
that this work could not have been finiſhed b
fore the year 190, or later. *Collect. of Jew*
and Heathen Teſtimonies, &c. vol. i. p. 17
Thus the book called the *Miſchna* was formed;
book which the Jews have generally received wi
the greateſt veneration. The original has be
publiſhed with a Latin tranſlation by Surenhuſiu
with notes of his own, and others from the lear
ed Maimonides, &c. in 6 vols. fol. Amſterd. A.
1698—1703. (See TALMUD.) It is written in
much purer ſtyle, and is not near ſo full of drean
and viſions as the Gemara.

MISCHNICAL, *adj.* Of or belonging to t
MISCHNA.

MISCIANO, a town of Naples, in Otranto.

* MISCIBLE. *adj* [from *miſceo*, Latin.] Poſ
ble to be mingled.—Acid ſpirits are ſubtle liquo
which come over in diſtillations, not inflammab
Miſcible with water. *Arbuthnot.*

* MISCITATION. *n. ſ.* [*mis* and *citation.*] U
fair or falſe quotation.—Being charged with *m*
citation and unfair dealing, it was requiſite to ſ
ſomething. *Collier.*

* *To* MISCITE. *v. a.* [*mis* and *cite.*] To quo
wrong.

* MISCLAIM. *n. ſ.* [*mis* and *claim.*] Miſtak
claim.—Error, *miſclaim*, and forgetfulneſs, becom
ſuitors for ſome remiſſion of extreme rigour. *Bac*

MISCO, a town of Mexico, in Guatimala.

* MISCOMPUTATION. *n. ſ.* [*mis* and *comp*
tation.] Falſe reckoning.—It was a general miſfo
tune and *miſcomputation* of that time, that t
party had ſo good an opinion of their own rep
tation and intereſt. *Clarendon.*

* MISCONCEIT. See MISCONCEPTION.

* *To* MISCONCEIVE. *v. a.* [*mis* and *conceiv*
To miſjudge; to have a falſe notion of.—

Ne let falſe whiſpers, breeding hidden fear
Break gentle ſleep with *miſconceived* doubt. *Sp*

—To yield them juſt and reaſonable cauſes
thoſe things, which, for want of due conſider
tion heretofore, they *miſconceived.* *Hooker.*

Miſconceiv'd Joan of Arc hath been
A virgin from her tender infancy. *Henry V*

* MISCONCEPTION, MISCONCEIT. *n. ſ.* [*m*
and *conceit*, and *conception.*] Falſe opinion; wron
notion.—The other, which inſtead of it we are r
quired to accept, is only by error and *miſcon*
named the ordinance of Jeſus Chriſt. *Hooker.*—
cannot be that our knowledge ſhould be oth
than an heap of *miſconception* and error. *Glanv*
—Great errors and dangers reſult out of a *miſc*
ception of the names of things. *Harvey on Con*
—It will be a great ſatisfaction to ſee thoſe piec
of moſt ancient hiſtory, which have been chi
preſerved in ſcripture, confirmed anew, and fr
from *miſconceptions* or miſrepreſentations. *Bur*

* MI

* MISCONDUCT. *n. ſ.* [*mis* and *conduct.*] Ill behaviour; ill management.—They are induſtriouſly proclaimed and aggravated by ſuch as are guilty or innocent of the ſame ſlips or *miſconducts*. *Spectator.*—How great obligations both the memory of their paſt *miſconduct*, and their preſent advantages, laid on them, to walk with care. *Rogers.*

* *To* MISCONDUCT. *v. a.* [*mis* and *conduct.*] To manage amiſs; to carry on wrong.

* MISCONJECTURE. *n. ſ.* [*mis* and *conjecture.*] A wrong gueſs.—I hope they will plauſibly receive our attempts, or candidly correct our *miſconjectures*. *Brown's Vulg. Err.*

* *To* MISCONJECTURE. *v. a.* [*mis* and *conjecture.*] To gueſs wrong.

* MISCONSTRUCTION. *n. ſ.* [*mis* and *conſtruction.*] Wrong interpretation of words or things.—

It pleas'd the king his maſter very lately
To ſtrike at me upon his *miſconſtruction*. *Shak.*

—Others conceive the literal acceptation to be a *miſconſtruction* of the ſymbolical expreſſion. *Brown.* —Thoſe words were very weakly inſerted where they are ſo liable to *miſconſtruction*. *Stillingfleet.*

* *To* MISCONSTRUE. *v. a.* [*mis* and *conſtrue.*] To interpret wrong.—That which by right expoſition buildeth up Chriſtian faith, being *miſconſtrued*, breedeth error. *Hooker.*

You might well have ſignified the ſame
Unto the citizens, who, haply, may
Miſconſtrue us in him. *Shak. Rich.* III.

—Many of the unbelieving Iſraelites would have *miſconſtrued* this ſtory of mankind. *Raleigh.*—

Do not, great Sir, *miſconſtrue* his intent,
Nor call rebellion what was prudent care. *Dryd.*

—A virtuous emperor was much afflicted to find his actions *miſconſtrued* and defamed by a party. *Addiſon.*

* MISCONTINUANCE. *n. ſ.* [*mis* and *continuance.*] Ceſſation; intermiſſion.

* *To* MISCOUNSEL. *v. a.* [*mis* and *counſel.*] To adviſe wrong.—

But things *miſcounſelled* muſt needs miſwend.
Spenſer.

* *To* MISCOUNT. *v. a.* [*meſcounter*, French; *mis* and *count.*] To reckon wrong.

* MISCREANCE. } *n. ſ.* [from *meſcreance* or
* MISCREANCY. } *meſcroiance*, Fr.] Unbelief; falſe faith; adherence to a falſe religion.—

If thou wilt renounce thy *miſcreance*,
And my true liegeman yield thyſelf for ay,
Life will I grant the for thy valiance. *Spenſer.*

—The more uſual cauſes of deprivation are murther, manſlaughter, hereſy, *miſcreancy*, atheiſm, ſimony. *Ayliffe.*

* MISCREANT. *n. ſ.* [*meſcreant*, Fr.] 1. One that holds a falſe faith; one who believes in falſe gods.—A wicked generation of *miſcreants*, which had forſaken the living God. *Hooker.* 2. A vile wretch.—

Now by Apollo, king,
Thou ſwearſt thy gods in vain.
—O vaſſal! *miſcreant!* *Shak. King Lear.*

—Thoſe *miſcreants* ought to be made ſenſible that our conſtitution is armed with force. *Addiſon.*

* MISCREATE. } *adj.* [*mis* and *created.*]
* MISCREATED. } Formed unnaturally or illegitimately; made as by a blunder of nature.—

Then made he head againſt his enemies,
And Ymner ſlew, or Logris *miſcreate*. *F. Queen.*
Eftſoons he took that *miſcreated* fair,
And that falſe other ſprite, on whom he ſpread
A ſeeming body of the ſubtile air. *Spenſer.*
God forbid, my lord,
That you ſhould faſhion, wreſt, or bow your
reading,
With opening titles *miſcreate*. *Shak.*

* MISDEED. *n. ſ.* [*mis* and *deed.*] Evil action.

If thou wilt be aveng'd on my *miſdeeds*,
Yet execute thy wrath on me alone. *Rich.* III.
Evils, which our own *miſdeeds* have wrought.
Milton.
Chas'd from a throne, abandon'd, and exil'd
For foul *miſdeeds* were puniſhments too mild.
Dryden.

* *To* MISDEEM. *v. a.* [*mis* and *deem.*] To judge ill of; to miſtake.—

All unweeting an inchanter bad
His ſenſe abus'd, and made him to *miſdeem*
My loyalty, not ſuch as it did ſeem. *F. Queen.*
Beſides, were we unchangeable in will,
And of a wit that nothing could *miſdeem*;
Equal to God, whoſe wiſdom ſhineth ſtill
And never errs, we might ourſelves eſteem.
Davies.

* *To* MISDEMEAN. *v. a.* [*mis* and *demean.*] To behave ill.—

From frailty
And want of wiſdom, you, that beſt ſhould
teach us,
Have *miſdemean'd* yourſelf. *Shak. Henry* VIII.

(1.) * MISDEMEANOR. *n. ſ.* [*mis* and *demean.*] Offence; ill behaviour; ſomething leſs than an atrocious crime.—The houſe of commons have only power to cenſure the members of their own houſe, in point of election or *miſdemeanors*, in or towards that houſe. *Bacon.*—It is no real diſgrace to the church merely to loſe her privileges, but to forfeit them by her fault or *miſdemeanor*. *South.* —Theſe could never have touched the head, or ſtopped the ſource of theſe unhappy *miſdemeanors*, *Woodward's Nat. Hiſtory.*

(2.) MISDEMEANOR, in law, ſignifies a crime; but the law diſtinguiſhes between crimes of a higher and a lower nature; the latter being denominated *miſdemeanors*, the former FELONIES, &c. Blackſtone, in his *Commentaries*, (vol. iv. 5.) thus diſtinguiſhes them, "A crime, or miſdemeanour, is an act *committed* or *omitted*, in violation of a public law, either forbidding or commanding it. This general definition comprehends both *crimes* and *miſdemeanors*; which, properly ſpeaking, are ſynonymous terms; though, in common uſage, the word *crime* denotes ſuch offences as are of a deeper and more atrocious dye; while ſmaller faults, and omiſſions of leſs conſequence, are compriſed under the gentler name of *miſdemeanors* only."

* MISDEVOTION. *n. ſ.* [*mis* and *devotion.*] Miſtaken piety.—

A place, where *miſdevotion* frames
A thouſand prayers to ſaints, whoſe very names
The church knew not, heav'n knows not yet.
Donne.

* MISDIET. *n. ſ.* [*mis* and *diet.*] Improper food.

A dropſy through his fleſh did flow,
Which by *miſdiet* daily greater grew. *F Queen.*

* *To* MISDISTINGUISH. *v. a.* [*mis* and *diſtinguiſh.*] To make wrong diſtinctions.—If we imagine a difference where there is none, becauſe we diſtinguiſh where we ſhould not, it may not be denied that we *miſdiſtinguiſh. Hooker.*

(1.) * *To* MISDO. *v. a.* [*mis* and *do.*] To do wrong: to commit.—

Afford me place to ſhew what recompence
T'wards thee I intend for what I have *miſdone.*
Milton.

(2.) * *To* Misdo. *v. n.* To commit faults.—

Try the erring ſoul
Not wilfully *miſdoing*, but unaware
Miſled. *Milton's Par. Regain'd.*
I have *miſdone*, and I endure the ſmart,
Loth to acknowledge, but more loth to part.
Dryden.

* MISDOER. *n. ſ.* [from *miſdo.*] An offender; a criminal; a malefactor.—Were they not contained in duty with a fear of law, which inflicteth ſharp puniſhments to *miſdoers*, no man ſhould enjoy any thing. *Spenſer on Ireland.*

* MISDOING. *n. ſ.* [from *miſdo.*] Offence; deviation from right.—Without any awe of that all-ſeeing eye that obſerves all our *miſdoings. L'Eſtr.*

* MISDOUBT. *n. ſ.* [*mis* and *doubt.*] 1. Suſpicion of crime or danger.—

He cannot ſo preciſely weed this land,
As his *miſdoubts* preſent occaſion. *Henry* IV.

2. Irreſolution; heſitation.—

York, ſteel thy fearful thoughts,
And change *miſdoubt* to reſolution. *Henry* VI.

* *To* Misdoubt. *v. a.* [*mis* and *doubt.*] To ſuſpect of deceit or danger.—If ſhe only *miſdoubted* me, I were in heaven. *Sidney.*—I do not *miſdoubt* my wife, but I would be loth to turn them both together; a man may be too confident. *Shak.*—

The bird that hath been limed in a buſh,
With trembling wings *miſdoubteth* every buſh.
Shak. Henry VI.
If you *miſdoubt* me that I am not ſhe,
I know not how I ſhall aſſure you farther. *Shak.*
To believe his wiles my truth can move,
Is to *miſdoubt* my reaſon or my love. *Dryden.*

(1.) * MISE. *n. ſ.* [French.] Iſſue. Law term. *Dict.*

(2.) Mise, in law, is uſed in various ſenſes: ſometimes for coſts or expenſes; in which ſenſe it is commonly uſed in entering of judgments in actions perſonal. It is alſo uſed for the iſſue to be tried on the grand aſſize; in which caſe, joining of the miſe upon the mere right, is putting in iſſue, between the tenant and demandant, Who has the beſt or cleareſt right?

(3.) Mise alſo ſignifies a tax or tallage, &c. An honorary gift, or cuſtomary preſent from the people of Wales to every new king or prince of Wales, anciently given in cattle, wine, and corn, but now in money, being 5000 l. or more, is denominated a *miſe*: ſo was the uſual tribute of 3000 merks paid by the inhabitants of the county palatine of Cheſter at the change of every owner of the ſaid earldoms, for enjoying their liberties. At Cheſter they have a miſe-book, wherein every town and village in the county is rated what to pay towards the miſe. The 27th Hen. VII. c. 26. ordains that lords ſhall have all ſuch miſes and profits of their lands as they had in times paſt, &c.

(4.) Mise is ſometimes alſo corruptly uſed for *meaſe*, in law French *mees*, a *meſſuage*; as a *miſe place*, in ſome manors, ſuch a meſſuage or tenement as anſwers the lord a heriot at the death of its owner. 2. *Inſt.* 528.

* *To* MISEMPLOY. *v. a.* [*mis* and *employ.*] To uſe to wrong purpoſes.—

Their frugal fathers gains the *miſemploy*,
And turn to point and pearl. *Dryden*

—Some taking things upon truſt, *miſemploy* thei power by lazily enſlaving their minds to the dictate of others. *Locke.*—That vain and fooliſh hope which is *miſemployed* on temporal objects, pro duces many ſorrows. *Spectator.*—They grew diſ ſolute and prophane: and by *miſemploying* th advantages which God had thrown into their lap provoked him to withdraw them. *Atterbury.*

* MISEMPLOYMENT. *n. ſ.* [*mis* and *employ ment.*] Improper application.—An improviden expenſe, and *miſemployment* of their time an faculties. *Hale.*

MISENO, a cape of Naples. See Misenum.

MISENUM, or } in ancient geography, a pro
MISENUS, } montory, port, and town o Italy, in Campania, SW. of Baiæ, in the Sinu Puteolanus, on the N. ſide. Here Auguſtus ha a fleet, called *Claſſis Miſenenſis*, for guarding th Mare Inferum; as he had another at Ravenna fo the Superum. On this peninſula a villa was buil by Caius Marius, with a degree of elegance tha gave great offence to the more auſtere among th Romans, who thought it ill ſuited to the charac ter of ſo rough a ſoldier. Upon the ſame foun dation Lucullus, the plunderer of the eaſter world, erected an edifice, in compariſon of whic the former houſe was a cottage; but even h magnificence was eclipſed by the ſplendour of th palace which the emperors raiſed upon the ſam ſpot. To theſe proud abodes of heroes and mo narchs, which have long been levelled to th ground, a few fiſhing huts, as Mr Swinburn inform us, and a lonely public houſe, have ſucceeded hither boatmen reſort to tipple, perhaps on th identical ſite where the voluptuous maſters of th world quaffed Chian and Falernian wines.

* MISER. *n. ſ.* [*miſer*, Lat.] 1. A wretche perſon; one overwhelmed with calamity.—D not diſdain to carry with you the woeful word of a *miſer* now deſpairing. *Sidney.*—I wiſh that i may not prove ſome ominous foretoken of mis fortune to have met with ſuch a *miſer* as I am *Sidney.*—

Fair ſon of Mars,—
Vouchſafe to ſtay your ſteed for humble *miſer'*
ſake. *Spenſe*

2. A wretch; a mean fellow.—

Decrepit *miſer!* baſe ignoble wretch!
I am deſcended of a gentler blood. *Sha*

3. A wretch covetous to extremity; one who u wealth makes himſelf miſerable by the fear of po verty. This is the only ſenſe now in uſe.—

Though ſhe be dearer to my ſoul than reſt
To weary pilgrims, or to *miſers* gold,
Rather than wrong Caſtalio I'd forget her. *Otwa*
No ſilver ſaints, by dying *miſers* giv'n,
Here brib'd the rage of ill-requited heav'n. *Pop*

* MISERABLE. *adj.* [*miſerable*, Fr. *miſer*, Lat. 1. Unhappy; calamitous; wretched.—

O nation *miſerable*;
With an untitled tyrant, bloody ſcepter'd. *Shak.*
Moſt *miſerable* is the deſire that's glorious.
Shak.
What's more *miſerable* than diſcontent? *Shak.*

—There will be a future ſtate, and then how *miſerable* is the voluptuous unbeliever left in the lurch. *South.*—

What hopes delude thee, *miſerable* man?
Dryden.

2. Wretched: worthleſs.—*Miſerable* comforters are ye all. *Job.* xvi. 2. 3. Culpably parſimonious; ſtingy. In low language. 4. Deſpicable; wretched; mean: as, *a* miſerable *perſon.*

* MISERABLENESS. *n. ſ.* [from *miſerable.*] State of miſery.

* MISERABLY. *adv.* [from *miſerable.*] 1. Unhappily; calamitouſly.—Of the five employed by him, two of them quarrelled, one of which was ſlain, and the other hanged for it; the third drowned himſelf; the fourth, though rich, came to beg his bread; and the fifth was *miſerably* ſtabbed to death. *South.* 2. Wretchedly; meanly.—As the love I bear you makes me thus invite you, ſo the ſame love makes me aſhamed to bring you to a place, where you ſhall be ſo *miſerably* entertained. *Sidney.* 3. Covetouſly. *Ainſworth.*

MISERDEN, a village of Glouceſterſh. 2 m. from Biſley and 9 from Glouceſter; adjacent to a park, 7 m. in circumference, full of fine beech trees. In a valley in this park there is a circular mount, alſo covered with trees, which was the ſeat of an ancient caſtle, built in the reign of K. John. Part of the moat, which ſurrounded it, is ſtill viſible.

MISERICORDIA, in law, an arbitrary fine impoſed on any perſon for an offence: this is called *miſericordia*, becauſe the amercement ought to be but ſmall, and leſs than that required by magna charta. If a perſon be outrageouſly amerced in a court that is not of record, the writ called *moderata miſericordia* lies for moderating the amercement according to the nature of the fault.

* MISERY. *n. ſ.* [*miſeria*, Lat. *miſere*, Fr.] 1. Wretchedneſs; unhappineſs.—

My heart is drown'd with grief,
My body found engirt with *miſery.* *Shak.*

—Happineſs, in its full extent, is the utmoſt pleaſure we are capable of, and *miſery* the utmoſt pain. *Locke.*—Perhaps it may be found more eaſy to forget the language, than to part entirely with thoſe tempers which we learnt in *miſery. Law.* 2. Calamity; misfortune; cauſe of miſery.—

When we our betters ſee bearing our woes,
We ſcarcely think our *miſeries* our foes. *Shak.*
The gods from heav'n ſurvey the fatal ſtrife,
And mourn the *miſeries* of human life. *Dryden.*

3. [From *miſer.*] Covetouſneſs; avarice. Not in uſe. *Miſer* now ſignifies not an *unhappy*, but a *covetous* man; yet *miſery* now ſignifies not *covetouſneſs* but *unhappineſs.*—

He covets leſs
Than *miſery* itſelf would give. *Shak.*

—In a fabrick of L.40,000 charge, I wiſh L.3 laid out before in an exact model: for a little *miſery* may eaſily breed ſome abſurdity of greater charge. *Wotton.*

* MISESTEEM. *n. ſ.* [*mis* and *eſteem.*] Diſregard: ſlight.

* *To* MISFASHION. *v. a.* [*mis* and *faſhion.*] To form wrong.—A thing in reaſon impoſſible, through their *misfaſhioned* preconceit, appeared unto them no leſs certain, than if nature had written it in the very foreheads of all the creatures of God. *Hakewill.*

MISFEASANCE. *n. ſ.* in law, a treſpaſs.

* *To* MISFORM. *v. a.* [*mis* and *form.*] To put in an ill form.—

His monſtrous ſcalp down to his teeth it tore,
And that *misformed* ſhape miſhaped more.
Spenſer.

(1.) * MISFORTUNE. *n. ſ.* [*mis* and *fortune.*] Calamity; ill luck; want of good fortune.—Fortune thus 'gan ſay, miſery and *misfortune* is all one, and of *misfortune*, fortune hath only the gilt. *Sidney.*—

What world's delight, or joy of living ſpeech,
Can heart ſo plung'd in ſea of ſorrows deep,
And heaped with ſo huge *misfortunes* reach?
Spenſer.
Conſider why the change was wrought,
You'll find it his *misfortune*, not his fault.
Addiſon.

(2.) MISFORTUNE, or chance, in law, is a deficiency of the will in committing an unlawful act; or by chance, and not by deſign. In ſuch caſe, the will does not co-operate with the deed; which therefore wants one main ingredient of a crime. See CRIME. For this, when it affects the life of another, See the article HOMICIDE. Here we need only obſerve, that if any accidental miſchief happens to follow from the performance of a lawful act, the party ſtands excuſed from all guilt: but if a man be doing any thing unlawful, and a conſequence enſues which he did not foreſee or intend, as the death of a man or the like, his want of foreſight ſhall be no excuſe; for being guilty of one offence, in doing antecedently what is in itſelf unlawful, he is criminally guilty of whatever conſequence may follow the firſt miſbehaviour.

* *To* MISGIVE. *v. a.* [*mis* and *give.*] To fill with doubt; to deprive of confidence. It is uſed always with the reciprocal pronoun.—

So doth my heart *miſgive me* in theſe conflicts
What may befall him. *Shak.*
This is ſtrange! Who hath got the right Anne?
My heart *miſgives me.* *Shak. Merry Wives.*
Yet oft his heart, divine of ſomething ill,
Miſgives him. *Milton.*

—His heart *miſgave him*, that theſe were ſo many meeting-houſes. *Addiſon.*

* MISGIVING. *n. ſ.* [from *miſgive.*] Doubt; diſtruſt.—The ſinner is left in the plunge of infinite doubts, ſuſpicions, and *misgivings*, both as to the meaſure of his preſent duty, and the final iſſues of his future reward. *South.*

* *To* MISGOVERN. *v. a.* [*mis* and *govern.*] To govern ill; to adminiſter unfaithfully.—Solyman charged him bitterly, that he had *miſgoverned* the ſtate, and inverted his treaſures to his own uſe. *Knolles.*

* MISGOVERNANCE, *n. ſ.* [*mis* and *governance.*] [Irregularity.—

Thy muſe too long ſlumbereth in ſorrowing,
Lulled aſleep thro' love's *miſgovernance.* *Spenſ.*

* MISGOVERNED. *adj.* [from *miſgovern.*] Rude; uncivilifed.—

Rude *miſgoverned* hands, from window tops,
Threw duſt and rubbiſh on king Richard's head.
Shak.

* MISGOVERNMENT. *n. ſ.* [*mis* and *government.*] 1. Ill adminiſtration of public affairs.—Men lay the blame of thoſe evils whereof they know not the ground, upon public *miſgovernment. Raleigh's Eſſays.* 2. Ill management.—Men are miſerable, if their education hath been ſo undiſciplined, as to leave them unfurniſhed of ſkill to ſpend their time; but moſt miſerable, if ſuch *miſgovernment* and unſkilfulneſs make them fall into vicious company. *Taylor.* 3. Irregularity; inordinate behaviour.—

Pretty lady,
I am ſorry for thy much *miſgovernment.* *Shak.*

* MISGUIDANCE. *n. ſ.* [*mis* and *guidance.*] Falſe direction.—The Nicene council fixed the equinox the 21ſt of March for the finding out of Eaſter: which has cauſed the *miſguidance* from the ſun which we lie under in reſpect of Eaſter, and the moveable feaſts. *Holder.*—He cauſes an error in his choice, the *miſguidance* of which muſt naturally engage him to his deſtruction. *South.*

* *To* MISGUIDE. *v. a.* [*mis* and *guide.*] To direct ill; to lead the wrong way.—Hunting after arguments to make good one ſide of a queſtion, and wholly to neglect thoſe which favour the other, is wilfully to *miſguide* the underſtanding. *Locke.*—

Miſguided prince! no longer urge thy fate,
Nor tempt the hero to unequal war. *Prior.*
All the cauſes which conſpire to blind
Man's erring judgment, and *miſguide* the mind.
Pope.

* MISHAP. *n. ſ.* [*mis* and *hap.*] Ill chance; ill luck; calamity.—To tell you what miſerable *miſhaps* fell to the young prince of Macedon his couſin, I ſhould too much fill your ears with ſtrange horrours. *Sidney.*—Since we are thus far entered into the conſideration of her *miſhaps*, tell me, have there been any more ſuch tempeſts wherein ſhe hath thus wretchedly been wrecked? *Spenſer.*—

Sir knight, take to you wonted ſtrength,
And maſter theſe *miſhaps* with patient might.
Spenſer.

Rome's readieſt champions, repoſe you here,
Secure from worldly chances and *miſhaps.* *Shak.*
It cannot be
But that ſucceſs attends him: If *miſhap*,
Ere this be had return'd. *Milton.*
If the worſt of all *miſhaps* hath fallen,
Speak. *Denham.*

* MISHMASH. *n. ſ.* *Ainſ.* A low word. A mingle or hotchpotch.

MISINABE. See MISSINABE.

* *To* MISINFER. *v. a.* [*mis* and *infer.*] To infer wrong.—Neſtorius teaching rightly, that God and man are diſtinct natures, did thereupon *miſinfer*, that in Chriſt thoſe natures can by no conjunction make one perſon. *Hooker.*

* *To* MISINFORM. *v. a.* [*mis* and *inform.*] To deceive by falſe accounts.—Some belonged to a man of great dignity, and not as that wicked Simon had *miſinformed.* 2 *Mac.* iii. 11.—By no means truſt to your ſervants, who miſlead you, or *miſinform* you. *Bacon.*—

Bid her well beware,
Leſt by ſome fair appearing good ſurpriz'd,
She dictate falſe, and *miſinform* the will. *Milt*

* MISINFORMATION. *n. ſ.* [from *miſinform.*] Falſe intelligence; falſe accounts.—Let not ſuc be diſcouraged as deſerve well, by *miſinformatio* of others. *Bacon.*—The vengeance of God, and the indignation of men, will join forces againſt a inſulting baſeneſs, when backed with greatneſ and ſet on by *miſinformation. South.*

* *To* MISINTERPRET. *v. a.* [*mis* and *interpret.*] To explain to a wrong ſenſe, or wrong intention.—The gentle reader reſts happy to hea the worthieſt works *miſinterpreted. Ben Jonſon.*—After all the care I have taken, there may be ſeveral paſſages miſquoted and *miſinterpreted. Arbuth*

* *To* MISJOIN. *v. a.* [*mis* and *join.*] To joi unfitly or improperly.—

In reaſon's abſence mimick fancy wakes
To imitate her; but *misjoining* ſhapes
Wild work produces oft. *Milton*
Luther, more miſtaking what he read,
Misjoins the ſacred body with the bread. *Dryd*

MISITRA, a town of European Turkey, th capital of the Morea, renowned in the ancient hiſtory of GREECE, under its original names of LACEDÆMON and SPARTA. See theſe articles. I has an impregnable caſtle ſeated on a rock; ſeveral churches, one of them called *Rerileptos*, ſai to be one of the moſt beautiful in the world; ſuperb Turkiſh moſque and hoſpital, with thre Jewiſh ſynagogues; and two large ſuburbs. It i the ſee of a Greek archbiſhop; the reſidence of bey, an aga and a waywode; and contains abou 12,000 inhabitants. It is ſeated on the Vaſilipotamo, 40 miles SSW. of Argos, 40 ENE. of Navarin, 60 S. of Corinth, 90 E. of Lepanto, and 10 SW. of Athens or Setines. It was taken by th Ruſſians in 1770. Lon. 22. 30. E. Lat. 37. 11. N

(1.) * *To* MISJUDGE. *v. a.* [*mis* and *judge* To miſtake; to judge ill of.—Where we *misjudg* the matter, a miſcarriage draws pity after i *L'Eſtrange.*

(2.) * *To* MISJUDGE. *v. n.* To form falſe opinions; to judge ill.—

You *misjudge;*
You ſee thro' love, and that deludes your ſigh
Dryd

—By allowing himſelf what is innocent, he bree offence to his weak and *misjudging* neighbou *Atterbury.*

Too long *misjudging* have I thought thee wiſ
Po

MISKOTZ, a town of Hungary, 30 miles W of Tokay.

MISLAVA, a town of Hungary, 10 miles E. Libeten.

* *To* MISLAY. *v. a.* [*mis* and *lay.*] To lay i a wrong place.—

Mean time my worthy wife our arms *miſla*
Dryde

—The fault is generally *miſlaid* upon nature. *Loc*
—If the butler be the tell-tale, *miſlay* a ſpoon, as he may never find it. *Swift.*

* **MISLAYER.** *n. ſ.* [from *miſlay.*] One that puts in the wrong place.—The *miſlayer* of a mere-ſtone is to blame: but the unjuſt judge is the capital remover of land-marks. *Bacon.*

* *To* **MISLE.** *v. n.* [from *miſt.*] To rain in imperceptible drops, like a thick miſt: properly to miſtle.—

Ynough, thou mourned haſt,
Now ginnes to *mizzle*, hie we homeward faſt.
Spenſer.

—The very ſmall drops of a *miſling* rain deſcending through a freezing air, do each of them ſhoot into one of thoſe figured icicles. *Grew.*—If the vapours more copiouſly aſcend, they are condenſed into *miſling*, or into ſhowers of ſmall rain, falling in numerous, thick, ſmall drops. *Derham.*—

In *miſling* days when I my threſher heard,
With nappy beer I to the barn repair'd. *Gay.*

* *To* **MISLEAD.** *v. a.* preterite and part. paſſive *miſled.* [*mis* and *lead.*] To guide a wrong way; to betray to miſchief or miſtake.]

Take, oh take thoſe lips away,
That ſo ſweetly were forſworn;
And thoſe eyes, the break of day,
Lights that do *miſlead* the morn. *Shak.*

Poor *miſled* men: your ſtates are yet worthy pity. *Ben. Jonſon.*

—Truſt not ſervants who *miſlead* or miſinform you. *Bacon.*—

The ſtars,
That nature hung in heav'n, and fill'd their lamps
With everlaſting oil, to give due light
To the *miſled* and lonely traveller. *Milton.*

What can they teach and not *miſlead?* *Milt.*

Thou who haſt taught me to forgive the ill,
And recompenſe, as friends, the good *miſled.*
Dryden.

—The imagination, which is of ſimple perception, doth never of itſelf, and directly, *miſlead* us. *Glanville.*—The ſame neceſſity eſtabliſhes ſuſpenſe, and ſcrutiny of each ſucceſſive deſire, whether the ſatisfaction of it does not interfere with our true happineſs, and *miſlead* us from it. *Locke.*—

But of the two leſs dang'rous is th' offence
To tire our patience, than *miſlead* our ſenſe.
Pope.

* **MISLEADER.** *n. ſ.* [from *miſlead.*] One that leads to ill.—

I baniſh thee on pain of death,
As I have done the reſt of my *miſleaders.* *Shak.*

—They have diſclaimed and abandoned thoſe heretical phantaſies touching our Saviour, wherein by their *miſleaders* they had been anciently plunged. *Brerewood on Languages.*

* **MISLEN.** *n. ſ.* [corrupted from *miſcellane.*] mixed corn; as, wheat and rie.—They commonly ſow thoſe lands with wheat, *miſlen*, and barley. *Mortimer.*

MISLETOE, in botany, and antiquity. See DRUIDS, § 11; MISTLETOE, and VISCUM.

* **MISLIKE.** *n. ſ.* [from the verb.] Diſapprobation; diſtaſte.—

Setting your ſcorns and your *miſlike* aſide,
Tell me ſome reaſon why the lady Gray
Should not become my wife. *Shak.*

Their angry geſtures with *miſlike* diſcloſe,
How much his ſpeech offends their noble ears.
Fairfax.

* *To* **MISLIKE.** *v. a.* [*mis* and *like.*] To diſapprove; to be not pleaſed with; to diſlike.—It was hard to ſay, whether he more liked his doings, or *miſliked* the effects of his doings. *Sidney.*—Aquinas, who *miſliked* this opinion, followed a worſe. *Ral.*

Judge not the preacher, for he is thy judge:
If thou *miſlike* him, thou conceiv'ſt him not.
Herbert.

* **MISLIKER.** *n. ſ.* [from *miſlike.*] One that diſapproves.—Open flatterers of great men, privy *miſlikers* of good men. *Aſcham.*

* *To* **MISLIVE.** *v. a.* [*mis* and *live.*] To live ill.

If he *miſlive* in leudneſs and luſt,
Little boots all the wealth and the truſt. *Spenſ.*

* *To* **MISMANAGE.** *v. a.* [*mis* and *manage.*] To manage ill.—The debates of princes councils would be in danger to be *miſmanaged*, ſince thoſe who have a great ſtroke in them are not always perfectly knowing in the forms of ſyllogiſm. *Locke.*

* **MISMANAGEMENT.** *n. ſ.* [*mis* and *management.*] Ill management; ill conduct.—It is *miſmanagement* more than want of abilities, that men have reaſon to complain of in thoſe that differ. *Locke.*—

The falls of fav'rites, projects of the great,
Of old *miſmanagements*, taxations new,
All neither wholly falſe, nor wholly true. *Pope.*

* *To* **MISMARK.** *v. a.* [*mis* and *mark.*] To mark with the wrong token.—Things are *miſmarked* in contemplation and life for want of application or integrity. *Collier.*

* *To* **MISMATCH.** *v. a.* [*mis* and *match.*] To match unſuitably.—

What, as my years forſaken! had I
Ugly, or old, *miſmatcht* to my deſires? *Southern.*

(1.) MISNA, a river of European Turkey, in Boſnia; which riſes near Kroſſeva, and runs into the Boſna, 8 miles SE. of Serajo.

(2.) MISNA. See MISCHNA.

* *To* **MISNAME.** *v. a.* [*mis* and *name.*] To call by the wrong name.—They make one man's fancies, or perhaps failings, confining laws to others, and convey them as ſuch to their ſucceeders, who are bold to *miſname* all unobſequiouſneſs to their incogitancy, preſumption. *Boyle.*

MISNIA. See MEISSEN, N° 1.

(1.) * **MISNOMER.** *n. ſ.* [French.] In law, an indictment, or any other act vacated by a wrong name.

(2.) *A* MISNOMER, in law, is a miſnaming or miſtaking a perſon's name. The Chriſtian name of a perſon ſhould always be perfect; but the law is not ſo ſtrict in regard to ſurnames, a ſmall miſtake in which will be diſpenſed with to make good a contract, and ſupport the act of the party. See PLEA TO INDICTMENT.

MISO, *n. ſ.* a ſubſtance reſembling ſalt butter, and uſed as a ſubſtitute for it by the Japaneſe, prepared from a plant called *Daidſu*, a ſpecies of Dolichos. (See DOLICHOS, N° 3.) To make it, they take a meaſure of *mami*, or the beans produced by the plant; after boiling them for a conſiderable time in water, and to a proper degree of ſoftneſs, they beat or bray them into a ſoftiſh pulſe; incorporating with the maſs a large quantity of ſalt, 4 meaſures in ſummer, and 3 in winter. The leſs ſalt that is added, the ſubſtance is more palatable; but what it gains in point of taſte, it loſes in durability. They then add to this mixture a certain proportion of rice, called *koos;* and having formed the whole into a compoſt, remove it into a wooden veſſel which had lately contained their common ale, named *ſacki.* In two months it is fit for uſe. The koos gives it a grateful taſte; and the preparing of it, like the palenta of the Germans, requires the ſkilful hand of an experienced maſter. For this reaſon there are people who make it their ſole buſineſs to prepare the koos, and who ſell it ready made for making miſo: a ſubſtance which cannot fail to be greatly valued in thoſe countries where butter from the milk of animals is unknown.

* *To* MISOBSERVE. *v. a.* [*mis* and *obſerve.*] Not to obſerve accurately.—They underſtand it as early as they do language; and, if I *miſobſerve* not, they love to be treated as rational creatures ſooner than it is imagined. *Locke.*

* MISOGAMIST. *n. ſ.* [μισω and γαμος.] A marriage-hater.

* MISOGYNY. *n. ſ.* [μισω and γυνη.] Hatred of women.

MISON, a town of France, in the dep. of the Lower Alps, 6 miles NW. of Siſteron.

* MISORDER. *n. ſ.* [from the verb.] Irregularity; diſorderly proceedings.—When news was brought to Richard II. that his uncles, who fought to reform the *miſorders* of his counſellors, were aſſembled in a wood near unto the court, he merrily demanded of one Sir Hugh a Linne, what he would adviſe him to do? *Camden.*

* *To* MISORDER. *v. a.* [*mis* and *order.*] To conduct ill; to manage irregularly.—If the child miſs either in forgetting a word, or *miſordering* the ſentence, I would not have the maſter frown. *Aſcham.* —Yet few of them came to any great age, by reaſon of their *miſorder'd* life when they are young. *Aſcham.*—

The time *miſorder'd* doth in common ſenſe
Croud us, and cruſh us to this monſtrous form,
To hold our ſafety up. *Shak.*

* MISORDERLY. *adj.* [from *miſorder.*] Irregular; unlawful.—His over-much fearing of you drives him to ſeek ſome *miſorderly* ſhift, to be helped by ſome other book. *Aſcham.*

MISPACH, a town of Bavaria, in Waldeck.

* *To* MISPEL. *v. a.* [*mis* and *ſpell.*] To ſpell wrong.—She became a profeſt enemy to the arts and ſciences, and ſcarce ever wrote a letter to him without wilfully *miſpelling* his name. *Spectator.*

* *To* MISPEND. *v. a.* preterite and part. paſſive *miſpent.* [*mis* and *ſpend.*] 1. To ſpend ill; to waſte; to conſume to no purpoſe; to throw away.—What a deal of cold buſineſs doth a man *miſpend* the better part of life in? In ſcattering compliments, tendering viſits, gathering and venting news. *Ben Jonſon.*—Let him now endeavour to redeem what he hath *miſpent.* *Duty of Man.*—

Anxious thoughts, within themſelves at ſtrife,
Upraid the long *miſpent,* luxurious life. *Dryden.*

I this writer's want of ſenſe arraign,
Treat all his empty pages with diſdain,
And think a grave reply *miſpent* and vain.
Blackmore.

—He who has lived with the greateſt care
find, upon a review of his time, that he has ſo
thing to redeem; but he who has *miſpent* m
has ſtill a greater concern. *Rogers.*—Wiſe men
trieve, as far as they are able, every *miſpent*
unprofitable hour. *Rogers.* 2. To waſte, w
the reciprocal pronoun.—

Now let the arched knife their thirſty lim
Diſſever, for the genial moiſture, due
To apples, otherwiſe *miſpends itſelf*
In barren twigs. *Phil*

* MISPENDER. *n. ſ.* [from *miſpend.*] One
ſpends ill or prodigally.—I ſuſpect the excelle
of thoſe men's parts, who are diſſolute, and c
leſs *miſpenders* of their time. *Norris.*

* MISPERSUASION. *n. ſ.* [*mis* and *perſuaſ*
Wrong notion; falſe opinion.—Some *miſper*
ſions concerning the Divine Attributes tend to
corrupting men's matters. *Decay of Piety.*

MISPICKEL, MISPICKLE, or MISPILT, *n. ſ.* } in metallurgy and mine
ogy, a ſpecies of white
rites. See METALLUR
Part I, *Sect.* V, and PYRITES.

* *To* MISPLACE. *v. a.* [*mis* and *place.*] To
in a wrong place.—

I'll have this crown of mine cut from
ſhoulders,
Before I'll ſee the crown ſo foul *miſplac'd.* S

Service but *miſplac'd,* or love miſtaken,
Performs the work. *Denh*

—He *miſplaced* his confidence, took hypocriſy
fidelity, and ſo relied upon the ſervices of a p
of villains. *South.*—Shall we repine at a little
placed charity? *Atterbury.*

* *To* MISPOINT. *v. a.* [*mis* and *point.*]
confuſe ſentences by wrong punctuation.

* *To* MISPRISE. *v. a.* Sometimes it ſigni
miſtaken, from the French verb *miſprendre;* ſo
times undervalued or diſdained, from the Fre
verb *mepriſer.* *Hanmer.* It is in both ſenſes w
ly obſolete. 1. To miſtake.—

You ſpend your paſſion on a *miſpris'd* mo
I am not guilty of Lyſander's blood. *S*

2. To ſlight; to ſcorn; to deſpiſe.—I am a
gether *miſpriſed.* *Shak.*—

Pluck indignation on thy head,
By the *miſpriſing* of a maid, too virtuous
For the contempt of empire. *Sh*

(I.) * MISPRISION. *n. ſ.* [from *miſpriſe.*]
Scorn; contempt. Not in uſe.—

Here take her hand,
Proud ſcornful boy, unworthy this good gi
That doth in vile *miſpriſion* ſhackle up
My love, and her deſert. *Sh*

2. Miſtake; miſconception. Not in uſe.—

Of thy *miſpriſion* muſt perforce enſue
Some true love turn'd, and not a falſe tur
true. *S*

—Herein is no cheat or *miſpriſion;* it is tru
Glenville. 3. [In common law.] It ſignifies
gligence, or overſight. *Miſpriſion* of treaſon is
concealment, or not diſcloſing, of known tr
ſon; for the which the offenders are to ſuffer
priſonment during the king's pleaſure, loſe th
goods and the profits of their lands during th
lives. *Miſpriſion* of felony is the letting any p
ſion, committed for treaſon or felony, or ſuſ
cion of either, to go before he be indicted. C

II.) Miſpriſions, from the old French, *meſpris*, a neglect or contempt, are, in the Engliſh law, generally underſtood to be all ſuch high offences as are under the degree of capital, but nearly bordering thereon; and a miſpriſion is contained in every treaſon and felony whatſoever; and if the king pleaſe, the offender may be proceeded againſt for the miſpriſion only. Upon this principle, while the juriſdiction of the ſtar-chamber ſubſiſted, it was held that the king might remit a proſecution for treaſon, and cauſe the delinquent to be cenſured in that court, merely for a high miſdemeanour; as happened in the caſe of Roger earl of Rutland, in 43 Eliz. who was concerned in the earl of Eſſex's rebellion. Miſpriſions are generally divided into two ſorts; viz. *negative*, which conſiſt in the concealment of ſomething which ought to be revealed; and *poſitive*, which conſiſt in the commiſſion of ſomething which ought not to be done.

i. Miſpriſions, Negative, are either miſpriſion of treaſon or of felony.

1. Miſpriſion of Felony, (§ 1. *def.* 3.) is the concealment of a felony which a man knows, but never aſſented to; for, if he aſſented, this makes him either principal or acceſſory. And the puniſhment of this, in a public officer, by ſtat. Weſtm. 1. 3 Edw. I. c. 9. is impriſonment for a year and a day: in a common perſon, impriſonment for a leſs diſcretionary time; and in both, fine and ranſom at the king's pleaſure; which pleaſure of the king muſt be obſerved, once for all, not to ſignify any extrajudicial will of the ſovereign, but ſuch as is declared by his repreſentatives, the judges in his courts of juſtice, *voluntas regis in curia, non in camera.*

2. Miſpriſion of Treaſon, (§ 1. *def.* 3.) conſiſts in the bare knowledge and concealment of treaſon, without any degree of aſſent thereto: for any aſſent makes the party a principal traitor; as indeed the concealment, which was conſtrued aiding and abetting, did at the common law; in like manner, as the knowledge of a plot againſt the ſtate, and not revealing it, was a capital crime at Florence, and other ſtates of Italy. But it is enacted by ſtat. 1 & 2 Ph. Mar. c. 10 that a bare concealment of treaſon ſhall be only held a miſpriſion. This concealment becomes criminal, if the party appriſed of the treaſon does not, as ſoon as conveniently may be, reveal it to ſome judge of aſſize or juſtice of the peace. But if there be any probable circumſtances of aſſent, as if one goes to a treaſonable meeting, knowing before hand that a conſpiracy is intended againſt the king; or, being in ſuch company once by accident, and having heard ſuch treaſonable conſpiracy, meets the ſame company again, and hears more of it, but conceals it; this is an implied aſſent in law, and makes the concealer guilty of actual high treaſon.

ii. Miſpriſions, Poſitive, are generally denominated *contempt* or *high miſdemeanours*; of which the principal is the *mal-adminiſtration* of ſuch high officers as are in public truſt and employment. This is uſually puniſhed by the method of parliamentary impeachment; wherein ſuch penalties, ſhort of death, are inflicted, as to the wiſdom of the houſe of peers ſhall ſeem proper; conſiſting uſually of baniſhment, impriſonment, fines, or perpetual diſability. Hither alſo may be referred the offence of *embezzling the public money*, called among the Romans *peculatus*; which the Julian law puniſhed with death in a magiſtrate, and with deportation, or baniſhment, in a private perſon. In the Engliſh law, it is not capital, but ſubjects the committer of it to a diſcretionary fine and impriſonment. Other miſpriſions are, in general, ſuch contempts of the executive magiſtrate as demonſtrate themſelves by ſome arrogant and undutiful behaviour towards the king and government. For a detail of which ſee Blackſtone's Comment. iv. 12.

* *To* MISPROPORTION. *v. a.* [*mis* and *proportion.*] To join without due proportion.

* MISPROUD. *adj.* [*mis* and *proud.*] Vitiouſly proud. Obſolete.—

Now I fall, my tough commixtures melt,
Impairing Henry, ſtrength'ning *miſproud* York.
Shak.

MISQUE Pocona, a town of S. America, in Buenos Ayrez, and prov. of Santa Cruz de la Sierra; 180 miles from Santa Cruz.

* *To* MISQUOTE. *v. a.* [*mis* and *quote.*] To quote falſely.

Look how we can, or ſad, or merrily,
Interpretation will *miſquote* our looks. *Shak.*

—After all the care I have taken, there may be ſeveral paſſages *miſquoted.* *Arbuthnot.*

MISRAIN. See Menes, and Mizraim.

* *To* MISRECITE. *v. a.* [*mis* and *recite.*] To recite not according to the truth.—He *miſrecites* the argument, and denies the conſequence. *Bramhall.*

* *To* MISRECKON. *v. a.* [*mis* and *reckon.*] To reckon wrong; to compute wrong.—Whoever finds a miſtake in the ſum total, muſt allow himſelf out, though after repeated trials he may not ſee in which article he has *miſreckoned.* *Swift.*

* *To* MISRELATE. *v. a.* [*mis* and *relate*] To relate inaccurately or falſely.—To ſatisfy me that he *miſrelated* not the experiment, he brought two or three ſmall pipes of glaſs, which gave me the opportunity of trying it. *Boyle.*

* MISRELATION. *n. ſ.* [from *miſrelate.*] Falſe or inaccurate narrative.—Mine aim was only to preſs home thoſe things in writing; a courſe much to be preferred before verbal conferences, as being leſs ſubject to miſtakes and *miſrelations.* *Bramb.*

* *To* MISREMEMBER. *v. a.* [*mis* and *remember.*] To miſtake by truſting to memory.—If I much *miſremember* not, I had ſuch a ſpirit from peas kept long enough to loſe their verdure. *Boyle.*

* MISREPORT. *n. ſ.* [from the verb.] Falſe account; falſe and malicious repreſentation.—

It may be ſome miſtake or *miſreport.* *Denh.*

—As by flattery a man is uſually brought to open his boſom to his mortal enemy, ſo by detraction, and a ſlanderous *miſreport* of perſons, he is often brought to ſhut the ſame even to his beſt and trueſt friends. *South.*

* *To* Miſreport. *v. a.* [*mis* and *report.*] To give a falſe account of; to give an account diſadvantageous and falſe.—His doctrine was *miſreported.* *Hooker.*—

A man that never yet
Did, as he vouches, *miſreport* your grace. *Shak.*

—The wrong judgment, that miſleads us, lies in *miſreporting* upon the various compariſons of theſe. *Locke*.

* *To* MISREPRESENT. *v. a.* [*mis* and *repreſent*. To repreſent not as it is; to falſify to diſadvantage: *mis* often ſignifies not only error, but malice or miſchief.—Two qualities neceſſary to a reader are common honeſty and common ſenſe; and no man could have *miſrepreſented* that paragraph, unleſs he were utterly deſtitute of one or both. *Swift*.—While it is ſo difficult to learn the ſprings of ſome facts, and ſo eaſy to forget the circumſtances of others, it is no wonder they ſhould be ſo groſsly *miſrepreſented* to the public. *Swift*.

* MISREPRESENTATION. *n. ſ.* [from *miſrepreſent*.] 1. The act of miſrepreſenting.—They have prevailed by *miſrepeſentations*, and other artifices. *Swift*. 1. Account maliciouſly falſe.—I have ſhown him his foul miſtakes and injurious *miſrepreſentations*. *Atterbury*.

* MISRULE. *n. ſ.* [*mis* and *rule*.] Tumult; confuſion; revel; unjuſt domination.—

In the portal plac'd, the heav'n-born maid,
Enormous riot, and *miſrule* ſurvey'd. *Pope*.
And through his airy hall the loud *miſrule*
Of driving tempeſt is for ever heard. *Thomſon*.

(1.) * MISS. *n. ſ.* [contracted from *miſtreſs*. *Bailey*] 1. The term of honour to a young girl.—Where there are little maſters and *miſſes* in a houſe, they are great impediments to the diverſions of the ſervants. *Swift*. 2. A ſtrumpet; a concubine; a whore; a proſtitute.—

All women would be of one piece,
The virtuous matron and the *miſs*. *Hudibras*.
This gentle cock, for ſolace of his life,
Six *miſſes* had beſide his lawful wife. *Dryd*.

(2.) * Miss. *n. ſ.* [from the verb.] 1. Loſs; want.—

Oh, I ſhould have a heavy *miſs* of thee,
If I were much in love with vanity. *Henry* IV.

—If theſe papers have that evidence in them, there will be no great *miſs* of thoſe which are loſt. *Locke*. 2. Miſtake; error. He did without any great *miſs* in the hardeſt points of grammar. *Aſcham*. 3. Hurt; harm. Obſolete.—

Though one fall through heedleſs heaſte,
Yet is his *miſſe* not mickle. *Spenſer*.

(3.) Miss, in geography, a river of Germany, which runs into the Drave, 5 miles E. of Lavamund.

(1.) * *To* Miss. *v. a.* [*miſſen*, Dutch and German.] *Miſſed* preter. *miſſed* or *miſt* part. 1. Not to hit by the mind; to miſtake.—

To heav'n their prayers
Flew up, nor *miſs'd* the way. *Milton*.
Nor can I *miſs* the way, ſo ſtrongly drawn
By this new-felt attraction. *Milton*.

2. Not to hit by manual aim.—

The life you boaſted to your jav'lin giv'n,
Prince, you have *miſs'd*. *Pope*.

3. To fail of obtaining.—If ſhe deſired above all things to have Orgaius, Orgalus feared nothing but to *miſs* Parthenia. *Sidney*.—

So may I, blind fortune leading me,
Miſs that, which one unworthier may attain,
And die with grieving. *Shak*.
Where ſhall a maid's diſtracted heart find reſt,
If ſhe can *miſs* it in her lover's breaſt? *Dryden*.

—When a man *miſſes* his great end, happineſs, will acknowledge he judged not right. *Locke*. To diſcover ſomething to be unexpectedly wan ing.—Without him I found a weakneſs, and miſtruſtfulneſs of myſelf, as one ſtrayed from beſt ſtrength, when at anytime I *miſſed* him. *Sidn* —Nothing was *miſſed*. 1 *Sam*. xxv. 21. 5. To without.—

We cannot *miſs* him; he does make our f
Fetch in our wood. *Sha*

6. To omit.—He that is ſo tender of himſelf, th he can never find in his heart ſo much as to *m* a meal. *Duty of man*.—

She would never *miſs* one day,
A walk ſo fine, a ſight ſo gay. *Pri*

7. To perceive want of.—

What by me thou haſt loſt thou leaſt ſh
miſs. *Milt*

—He who has a firm, ſincere friend, may want the reſt without *miſſing* them. *South*.

(2.) * *To* Miss. *v. n.* 1. To fly wide; not hit.—

Flying bullets now,
To execute his rage, appear too ſlow,
They *miſs* or ſweep but common ſouls away
Wall

2. Not to ſucceed.—The general root of ſuper tion is, that men obſerve when things *hit*, and n when they *miſs*. *Bacon*. 3. To fail; to miſta 4. To be loſt; to be wanting.—

My lord,
Upon my lady's *miſſing*, came to me
With his ſword drawn. *Sh*

—Thy ſhepherds we hurt not, neither was th ought *miſſing* unto them. 1 *Sam*. xxv. 7—

For a time caught up to God, as once
Moſes was in the mount, and *miſſing* long. *M*

5. To miſcarry; to fail, as by accident.

Th' invention all admir'd and each, how
To be th' inventor *miſs'd*. *Mil*

6. To fail to obtain, learn or find: ſometim with *of* before the object.—Grittus *miſſin* the Moldavian upon Maylat. *Knolles*.—The ral and relative perfections of the Deity are to be underſtood by us; upon the leaſt re we cannot *miſs* of them. *Atterbury*.

(1.) * MISSAL. *n. ſ.* [*miſſale*, Lat. *miſſ* The maſs book.—By the rubrick of the *mi* every ſolemn maſs, the prieſt is to go up to middle of the altar. *Stillingfleet*.

(2.) *The* Missal contains the ſeveral maſſes be ſaid on particular days. It is derived from Latin *miſſa*, which, in the ancient Chriſtian chur ſignified every part of divine ſervice.

* *To* MISSAY. *v. n.* [*mis* and *ſay*.] 1. To ſp ill of; to cenſure. Obſolete.—

Their ill behaviour garres men *miſſay*,
Both of their doctrine and their ſay. *Spen*

2. To ſay wrong.—

Diggon Davie, I bid her good day,
Or Diggon her is, or I *miſſay*. *Spen*

—We are not dwarfs, but of equal ſtatu Vives *miſſay* not. *Hakewill on Prov*.

* *To* MISSEEM. *v. n.* [*mis* and *ſeem*.] 1. make falſe appearance.—

Foul Dueſſa meet,
Who, with her witchcraft and *miſſeeming* ſw
Inveigled her to follow. *Fairy Qu*

2.

2. To miſbecome. Obſolete both.—

Never knight I ſaw in ſuch *miſſeeming* plight.
Fairy Queen.

MISSEL. See Turdus, N° 8.

MISSELTOE. See Mistletoe, and Viscum.

* *To* MISSERVE. *v. a.* [*mis* and *ſerve.*] To ſerve unfaithfully.—Great men, who *miſſerved* their country, were fined very highly. *Arbuthnot.*

* *To* MISSHAPE. *v. a.* part. *misſhaped* and *misſhapen.* [*mis* and *ſhape.*] 1. To ſhape ill; to deform.—

A rude *misſhapen*, monſtrous rabblement.
Fairy Queen.

His monſtrous ſcalp down to his teeth it tore,
And that misformed ſhape, *misſhaped* more.
Fairy Queen.

Him then ſhe does transform to monſtruous hues,
And horribly *misſhapes* with ugly ſights,
Captiv'd eternally in iron mews. *Fairy Queen.*

Let the *misſhaped* trunk that bears this head
Be round impaled with a glorious crown. *Shak.*

—Only the *misſhapen* and deſpicable dwarf is left ſtanding. *L'Eſtrange.*—

Pluto hates his own *misſhapen* race,
Her ſiſter furies fly her hideous face. *Dryden.*

—They make bold to deſtroy ill-formed and *misſhaped* productions. *Locke.*—The Alps broken into ſo many ſteps and precipices, form one of the moſt irregular, *misſhapen* ſcenes in the world. *Addiſon.*—We ought not to believe that the banks of the ocean are really deformed, becauſe they have not the form of a regular bulwark; nor that the mountains are *misſhapen*, becauſe they are not exact pyramids or cones. *Bentley.*

Some figures monſtrous and *misſhap'd* appear,
Conſider'd ſingly, or beheld too near. *Pope.*

2. In *Shakeſpeare*, perhaps, it once ſignifies ill directed: as, *to ſhape a courſe.*—

Thy wit, that ornament to ſhape and love,
Misſhapen in the conduct of them both,
Like powder in a ſkill-leſs ſoldier's flaſk,
I ſet on fire. *Shak. Romeo and Juliet.*

* MISSILE. *adj.* [*miſſilis*, Lat.] Thrown by the hand; ſtriking at a diſtance.—

We bend the bow, or wing the *miſſile* dart.
Pope.

MISSINABE, a lake of North America, in Canada. Lon. 84° 2′ 42″ W. Lat. 48° 29′ 42″ N.

MISSIO, in Roman antiquity, was a full diſcharge given to a ſoldier after 20 years ſervice, and differed from the exauctoratio, which was a diſcharge from duty after 17 years ſervice. Every ſoldier had a right to claim his *miſſio* at the end of 20 years.

(1.) * MISSION. *n. ſ.* [*miſſio*, Lat.] 1. Commiſſion; the ſtate of being ſent by ſupreme authority.

How to begin, how to accompliſh beſt,
His end of being on earth, and *miſſion* high. *Milt.*

—The divine authority of our *miſſion*, and the powers veſted in us, are publicly diſputed and denied. *Atterbury.* 2. Perſons ſent on any account, uſually to propagate religion.—In theſe ſhips there ſhould be a *miſſion* of three of the brethren of Solomon's houſe, to give us knowledge of the ſciences, manufactures, and inventions of all the world, and bring us books and patterns; and that the brethren ſhould ſtay abroad till the new *miſſion. Bacon's New Atl.* 3. Diſmiſſion; diſcharge. Not in uſe.—In Ceſar's army, ſomewhat the ſoldier's would have had, yet only demanded a *miſſion* or diſcharge, though with no intention it ſhould be granted, but thought to wrench him to their other deſires; whereupon with one cry they aſked *miſſion. Bacon's Apoph.* 4. Faction; party. Not in uſe.—

Glorious deeds, in theſe fields of late,
Made emulous *miſſions* 'mongſt the gods themſelves,
And drove great Mars to faction. *Shak.*

(2.) Mission, in theology, denotes a commiſſion to preach the goſpel. Jeſus Chriſt gave his diſciples their miſſion in theſe words, *Go and teach all nations*, &c. The Romaniſts reproach the Proteſtants, that their miniſters have no miſſion, as not being authoriſed in the exerciſe of their miniſtry, either by an uninterrupted ſucceſſion from the apoſtles, or by miracles, or by any extraordinary proof of a vocation. Many among us deny any other miſſion neceſſary for their miniſtry than the talents requiſite to diſcharge it.

(3.) Mission (§ 1. *def.* 2.) is alſo uſed for an eſtabliſhment of people zealous for the glory of God and the ſalvation of ſouls; who go and preach the goſpel in remote countries and among infidels. There are miſſions in the Eaſt as well as in the Weſt Indies. Among the Romaniſts, the religious orders of St Dominic, St Francis, St Auguſtine, &c. &c. have miſſions in the Levant, America, &c. The Jeſuits had likewiſe miſſions in China, and all other parts of the globe where they were able to penetrate. There have been alſo ſeveral Proteſtant miſſions for diffuſing the light of Chriſtianity through the benighted regions of Aſia and America. Of this kind has been the Daniſh miſſion planned by Frederic IV. in 1706. The liberality of private benefactors in our own country has been alſo extended to the ſupport of miſſionaries among the Indians in America. See Missionary, § 2.

(1.) * MISSIONARY, Missioner. *n. ſ.* [*miſſionaire*, Fr.] One ſent to propagate religion.—You mention the preſbyterian *miſſionary*, who hath been perſecuted for his religion. *Swift.*—

Like mighty *miſſioner* you come,
Ad partes infidelium. *Dryden.*

(2.) Missionary Societies. Under this article we cannot help taking notice of the zealous and laudable exertions of a numerous body of Chriſtians, in Scotland and England, who, within theſe few years, have aſſociated under this title, for the purpoſe of propagating the goſpel both at home and abroad, by ſending out miſſionary preachers. The moſt aſtoniſhing ſucceſs, we are credibly informed, has of late attended their labours, not only in Britain but in France, Ireland, America, and even in the Eaſt Indies; where great numbers of the natives have lately thrown off the prejudices of their education, under the Mahometan and Gentoo ſuperſtitions, and have openly embraced and avowed their faith in the doctrines of Chriſtianity. Conſidering the deep-rooted prejudices of the Gentoos, in favour of one or other of theſe ſyſtems of ſuperſtition, eſtabliſhed among them by the habits of many ages, the ſucceſs of the miſſionaries appears to be little leſs than miraculous. Yet we are aſſured by the London Papers of the 30th and 31ſt May, 1803, it has been ſo great, that "no fewer than 65,000 perſons lately received the ſacrament in one ſociety only." Among the other advantages ariſing from the exertions of theſe ſocieties, a tranſlation of the Bible into the Gentoo language has been commenced, and is now carrying on by perſons properly ſkilled in the oriental languages. For farther particulars, we muſt refer to the *Miſſionary Magazine*, and ſimilar publications by the Societies. We cannot conclude this article, however, without adding a ſhort extract from a circular letter publiſhed by the *Edinburgh Miſſionary Society*, dated 6th Dec. 1802, reſpecting the ſucceſs of their miſſion to the countries bordering on the *Caſpian Sea*.—"Almoſt all perſons, with whom they converſed, agreed in repreſenting the difficulty and extreme danger of fixing their reſidence in the S. parts of the *Ruſſian empire*, and ſtill more of attempting to convert the natives to the Proteſtant faith, inſomuch that they almoſt deſpaired of obtaining liberty to travel through the empire; yet, at length, their fears were diſpelled, obſtructions to their progreſs removed, and their way made proſperous. He, in whoſe hand are the hearts of all men, raiſed up for them a friend in M. Novaſſilzoff, a Ruſſian nobleman, in the confidence of the emperor Alexander, and a lord of his bed-chamber. Through his means they obtained not only the permiſſion but the *approbation* of the Ruſſian government. Paſſports were granted them, with liberty to travel through the empire; poſt horſes were ordered; letters of introduction given them; and an open letter was written by M. Novaſſilzoff, recommending them to the protection of all civil and military officers. Thus the difficulties have not only been removed, but a degree of public countenance given to the miſſion, of which the moſt ſanguine never entertained a hope." In conſequence hereof they travelled above 1400 miles by Moſcow, Tambou, and Sarepta, to Aſtrakhan, Georgia, Teſflis, Circaſſia, Karaſs, &c. and have every where met with ſucceſs and kindneſs.

MISSIQUASH, a river of N. America, which ſeparates the Britiſh provinces of Nova Scotia and New Brunſwick, from its ſource to its confluence with Beau Baſin, at the head of Chignecto Channel, and thence due E. to the bay of Verte, in the Straits of Northumberland.

MISSISCOUI. See MICHISCOUI.

MISSISIPPI, or the *river of St Lewis*, a river of North America, one of the largeſt in the world. Its ſources are unknown; having never been explored; but its length is reckoned upwards of 3000 miles. This noble river, with its eaſtern branches, waters five-8ths of the United States, and ſeparates them from Louiſiana and the Indian territories. The rivers and ſtreams which fall into it from the W. and E. are very numerous. The largeſt are, the MISSOURI from the W. and the ILLINOIS, OHIO, and TENNESSEE, from the E. It is navigable up to St Anthony's Falls, and a great way above them. Its banks abound with ſalt ſprings. Like the Nile, it has periodical inundations, by the melting o ſnow in the north; ſo that in May it overflows th country on each ſide, from 60 to 90 miles, and the inundation continues till near the end of July. In the loweſt parts of the country there are moraſſes, lakes, and canals, along the banks, which are generally covered with trees, and in ſome places the courſe of the river is confined betwee high precipices. Its inundations always leave great quantity of mud upon the land, and ſometimes carry down trees to the river's mouth where they form new iſlands, and render the entrance difficult. Its mouths, which fall into th Gulf of Florida, are ſituated between Lon 89 and 90° W. and between Lat. 29° and 30° N.

MISSISSAQUE, a river of Canada, which run into Lake Huron. Lon. 83. 40. W. Lat. 46. 0. N

(1.) * MISSIVE. *adj.* [*miſſive*, Fr.] 1. Such as i ſent.—The king grants a licence under the grea ſeal, called a congé d'elire, to elect the perſon b has nominated by his letters *miſſive*. *Ayliffe's Par* 2. Uſed at diſtance.—

In vain with darts a diſtant war they try,
Short, and more ſhort, the *miſſive* weapon fl
Dryden

(2.) * MISSIVE. *n. ſ.* [Fr.] 1. A letter ſent: is retained in Scotland in that ſenſe.—Great aid came in to him; partly upon *miſſives*, and partl voluntary from many parts. *Bacon's Henry* VII.— 2. A meſſenger. Both obſolete.—

Rioting in Alexandria, you
Did pocket up my letters; and with taunts
Did gibe my *miſſive* out of audience. *Sha*

—While wrapt in the wonder of it came *miſſiv* from the king, who all hail'd me thane of Cawder. *Shak. Macbeth.*

MIS-SLIAB, or the MOUNTAINS OF TH MOON, two high mountains of Ireland; the on in Antrim Ulſter; the other in Kerry, Munſte near Tralee Bay.

MISSON, Francis Maximilian, an emine French lawyer, who diſtinguiſhed himſelf b his pleadings before the parliament of Paris i favour of the reformers. He retired into England after the revocation of the edict of Nant and became a ſtrenuous aſſertor of the Proteſtant religion. In 1687 and 1688, he travelle to Italy as governor to an Engliſh nobleman; i conſequence of which, he publiſhed at the Hag "A new voyage to Italy," 3 vols. 12mo; whic has been tranſlated into Engliſh with many additions. He publiſhed alſo the "Sacred Theatre Cevennes, or an account of Prophecies and Miracles performed in that part of Languedoc," Lon 1707. "Obſervations and Remarks of a Traveller," 12mo, Hague. He died at London in 172

MISSOURI, a large river of North America, Louſiana, which is navigable for at leaſt 1 miles up, but its length and ſource are n known. It runs into the Miſſiſippi from the W in Lat. 39° N. 18 miles below the mouth of th Illinois, 195 above that of the Ohio, and 11 from the Balize, and Gulf of Mexico; but larger and broader than the Miſſiſippi. The Britiſh have flouriſhing ſettlements on the N. and banks of this river, and the Spaniards on the and W. (if not ceded to France, or by France the States), between 600 and 700 miles up.

MISSOURIS, a nation of N. American Indians; who inhabit the banks of the above river, and have about 1500 warriors.

(1.) * *To* **MISSPEAK.** *v. a.* [*mis* and *ſpeak.*] To ſpeak wrong.—

A mother delights to hear
Her early child *miſſpeak* half utter'd words.
Donne.

(2.) * *To* **Misspeak.** *v. n.* To blunder in ſpeaking.—

It is not ſo; thou haſt *miſſpoke*, miſheard;
Tell o'er thy tale again. *Shak. King Lear.*

MISUS, in the Circenſian games, were the matches in horſe or chariot races. The uſual number of *miſſus* or matches in one day was 24; though Domitian preſented the people with 100. The laſt match was generally made at the expenſe of the people, who made a collection for the purpoſe; hence it was called

Missus Ærarius, a ſubſcription plate.

(1.) * **MIST.** *n. ſ.* [*miſt*, Saxon.] 1. A low thin cloud; a ſmall thin rain not perceived in ſingle drops.—

Old Chaucer, like the morning ſtar,
To us diſcovers day from far;
His light thoſe *miſts* and clouds diſſolv'd
Which our dark nation long involv'd. *Denham.*
And *miſts* condens'd to clouds obſcure the ſky,
And clouds diſſolv'd, the thirſty ground ſupply.
Roſe.

—As a *miſt* is a multitude of ſmall but ſolid globules, which therefore deſcend; ſo a vapour, and therefore a watery cloud, is nothing elſe but a congeries of very ſmall and concave globules, which therefore aſcend to that height, in which they are of equal weight with the air, where they remain ſuſpended, till by ſome motion in the air, being broken, they deſcend in ſolid drops: either ſmall, as in a *miſt*, or bigger, when many of them run together, as in rain. *Grew.*—

Hov'ring *miſts* around his brows are ſpread,
Dryden.

—A cloud is nothing but a *miſt* flying high in the air, as a *miſt* is nothing but a cloud here below. *Locke.* 2. Any thing that dims or darkens.—My peoples eyes once blinded with ſuch *miſts* of ſuſpicion, they are miſled into the moſt deſperate actions. *K. Charles.*—

His paſſion caſt a *miſt* before his ſenſe,
And either made or magnify'd th' offence. *Dryd.*

(2.) **Mist, or Fog.** See **Fog**, and **Meteorology**, *Sect.* VI and VIII.

* *To* **Mist.** *v. a.* [from the noun.] To cloud; to cover with a vapour or ſteam.—

Lend me a looking-glaſs;
If that her breath will *miſt* or ſtain the ſtone,
Why then ſhe lives. *Shak.*

* **MISTA'EN.** pret. and part. paſſ. of *miſtake* for *miſtaken*, and ſo retained in Scotland.

This dagger hath *miſta'en*, for lo! the ſheath
Lies empty on the back of Montague,
The point miſſheathed in my daughter's boſom.
Shak.

(1.) * **MISTAKE.** *n. ſ.* [from the verb.] Miſconception; error.

He never ſhall find out fit mate; but ſuch
As ſome misfortune brings him, or *miſtake*. *Milt.*

—Infallibility is an abſolute ſecurity of the underſtanding from all poſſibility of *miſtake* in what it believes. *Tillotſon.* Thoſe terrors are not to be charged upon religion, which proceed either from the want of religion, or ſuperſtitious *miſtakes* about it. *Bentley.*

(2.) *A* **Mistake** is any wrong action committed, not through an evil deſign, but through an error of judgment.

(3.) **Mistake**, in Law. See **Ignorance**, § 4.

(4.) **Mistake Bay**, a large Bay of N. America, on the W. ſide of the entrance into Davis's Straits, and N. of Hudſon's ſtraits.

(1.) * *To* **Mistake.** *v. a.* [*mis* and *take.*] To conceive wrong; to take ſomething for that which it is not.—Theſe did apprehend a great affinity between their invocation of ſaints and the heathen idolatry, or elſe there was no danger one ſhould be *miſtaken* for the other. *Stillingfleet.*—This will make the reader very much *miſtake*, and miſunderſtand his meaning. *Locke.*—Fancy paſſes for knowledge, and what is prettily ſaid is *miſtaken* for ſolid. *Locke.*—

Fools into the notion fall,
That vice or virtue there is none at all:
Aſk your own heart, and nothing is ſo plain;
'Tis to *miſtake* them coſts the time and pain.
Pope.

(2.) * *To* **Mistake.** *v. n.* To err; not to judge right.—Seeing God found folly in his angels; mens judgments, which inhabit theſe houſes of clay, cannot be without their *miſtakings*. *Raleigh.* —Seldom any one *miſtakes* in his names of ſimple ideas, or applies the name red to the idea green. *Locke.*—Servants *miſtake*, and ſometimes occaſion miſunderſtanding among friends. *Swift.*

* **MISTAKEABLE.** *adv.* [from *miſtake.*] Liable to be conceived wrong.—It is not ſtrange to ſee the difference of a third part in ſo large an account, if we conſider how differently they are ſet forth in minor and leſs *miſtakeable* numbers. *Brown.*

* *To be* **MISTAKEN.** To err. [*To miſtake* has a kind of reciprocal ſenſe; *I miſtake, je me trompe. I am miſtaken*, means *I miſconceive, I am in an error;* more frequently than *I am ill underſtood*, but, *my opinion is miſtaken*, means *my opinion is not rightly underſtood.*—The towns, neither of the one ſide nor the other, willingly opening their gates to ſtrangers, nor ſtrangers willingly entering for fear of being *miſtaken. Sidney.*—

England is ſo idly king'd:
—You are too much *miſtaken* in this king: *Sh.*
Miſtaken Brutus thought to break their yoke,
But cut the bond of union with that ſtroke.
Waller.

Mistaken Point, a cape on the SE. corner of Newfoundland, 6 miles WNW. of Cape Race, for which it is often *miſtaken* by ſeamen, whence the name.

* **MISTAKINGLY.** *adv.* [from *miſtaking.*] Erroneouſly; falſely.—The error is not in the eye, but in the eſtimative faculty, which *miſtakingly* concludes that colour to belong to the wall, which does indeed belong to the object. *Boyle.*

* *To* **MISTATE.** *v. a.* [*mis* and *ſtate.*] To ſtate wrong.—They *miſtate* the queſtion, when they talk of preſſing ceremonies. *Biſhop Sanderſon.*

* *To* **MISTEACH.** *v. a.* [*mis* and *teach.*] To teach wrong.—Such guides ſhall be ſet over the ſeveral congregations as will be ſure to *miſteach* them. *Biſhop Sanderſon.*—The extravagances of the lewdeſt life are the more conſummate diſorders of a *miſtaught* or neglected youth, *L'Eſtrange.*

MISTEK, a town of Moravia, in Prerau.

* *To* **MISTELL.** *v. a.* [*mis* and *tell.*] To tell unfaithfully or inaccurately.

MISTELBACH, a town of Auſtria, 10 miles W. of Ziſterſtorf, and 18 N. of Vienna.

* *To* **MISTEMPER.** *v. a.* [*mis* and *temper.*] To temper ill; to diſorder.—

This inundation of *miſtemper'd* humour
Reſts by you only to be qualified. *Shakeſp.*

* **MISTER**, *adj.* [from *meſtier*, trade, Fr.] What *miſter*, what *kind* of. Obſolete.—

The redcroſs knight toward him croſſed faſt,
To weet what *miſter* wight was ſo diſmay'd.
Spenſer.

* *To* **MISTERM.** *v. a.* [*mis* and *term.*] To term erroneouſly.—

Hence baniſhed, is baniſh'd from the world;
And world exil'd is death. That baniſhed
Is death *miſterm'd* *Shak.*

* *To* **MISTHINK.** *v. a.* [*mis* and *think.*] To think ill; to think wrong.—

How will the country, for theſe woful chances,
Miſthink the king, and not be ſatisfy'd. *Shak.*

We, the greateſt, are *miſthought*
For things that others do. *Shak.*

Thoughts! which how found they harbour in thy breaſt,
Adam, *Miſthought* of her to thee ſo dear! *Milt*

MISTIC. See Mystic.

* *To* **MISTIME.** *v. a.* [*mis* and *time.*] Not to time right; not to adapt properly with regard to time.

* **MISTINESS.** *n. ſ.* [from *miſty.*] Cloudineſs; ſtate of being overcaſt.—The ſpeedy depredation of air upon watery moiſture, and verſion of the ſame into air, appeareth in the ſudden vaniſhing of vapours from glaſs, or the blade of a ſword, ſuch as doth not all detain or imbibe the moiſture, for the *miſtineſs* ſcattereth immediately. *Bacon.*

MISTINSINS, a nation of N. American Indians, who inhabit the S. ſide of a lake ſo named in Lower Canada.

* **MISTION.** *n. ſ.* [from *miſtus*, Lat.] The ſtate of being mingled.—In animals many actions are mixt, and depend upon their living form, as well as that of *miſtion*. *Brown.*—Both bodies do, by the new texture reſulting from their *miſtion*, produce colour. *Boyle.*

MISTISSINNY, a large lake of Canada; extending from Lon. 73. 40. to 75. 15. W. and from Lat. 50. 18. to 51. 0. N.

(1.) * **MISTLETOE.** *n. ſ.* [*miſteltan*, Sax. *miſtel*, Daniſh, *birdlime*, and *tan*, *a twig.*] A plant.—The flower of the *miſtletoe* conſiſts of one leaf, which is ſhaped like a baſon, divided into 4 parts, and beſet with warts; the ovary which is produced in the female flowers, is placed in a remote part of the plant from the male flowers, and conſiſts of 4 ſhorter leaves; this becomes a round berry full of a glutinous ſubſtance, incloſing a plain heart-ſhaped ſeed: this plant is always produced from ſeed, and is not to be cultivated in the earth, but will always grow upon trees; whence the ancients accounted it a ſuper-plant, who thought it to be an excreſcence on the tree without ſeed. The manner of its propagation is as follows; the *miſtletoe* thruſh, which feeds upon the berries of this plant in winter when it is ripe, doth open the ſeed from tree to tree; for the viſcous part of the berry, which immediately ſurrounds the ſeed, doth ſometimes faſten it to the outward part of the bird's beak, which, to get diſengaged of, he ſtrikes his beak at the branches of a neighbouring tree, and ſo leaves the ſeed ſticking by this viſcous matter to the bark, which, if it lights upon a ſmooth part of the tree, will faſten itſelf, and the following winter put out and grow: the trees which this plant doth moſt readily take upon are the apple, the aſh, and ſome other ſmooth rind trees: whenever a branch of an oak tree hath any of theſe plants growing upon it, it is cut off, and preſerved by the curious in their collection of natural curioſities. *Miller.*—

If ſnowe do continue, ſheepe hardly that fare
Crave *miſtle* and ivie for them for to ſhare.
Tuſſer.

The trees, though Summer, yet forlorn and lean,
O'ercome with moſs, and baleful *miſſeltoe*. *Shak.*

—*Miſſeltoe* groweth chiefly upon crab trees, apple trees, ſometimes upon hazles, and rarely upon oaks: the *miſſeltoe* whereof is counted very medicinal: it is ever green Winter and Summer, and beareth a white gliſtering berry; and it is a plant utterly differing from the plant upon which it groweth. *Bacon.*—

All your temples ſtrow
With laurel green, and ſacred *miſletoe*. *Gay.*

(2.) Mistletoe. See Druids, § 11, and Viscum.

* **MISTLIKE.** *adj.* [*miſt* and *like.*] Reſembling a miſt.—

Good Romeo, hide thyſelf.
—Not I, unleſs the breath of heart-ſick groans
Miſtlike, infold me from the ſearch of eyes.
Shak.

* **MISTOLD**, particip. paſſ. of *miſtell.*

* **MISTOOK**, particip. paſſ. of *miſtake.*

Look nymphs, and ſhepherds look,
What ſudden blaze of majeſty,
Too divine to be *miſtook*. *Milton.*

* **MISTRESS.** *n. ſ.* [*maiſtreſs*, *maitreſſe*, French.] 1. A woman who governs: correlative to *ſubject* or to *ſervant.*—

Here ſtood he in the dark, his ſharp ſword out,
Mumbling of wicked charms, conj'ring the moon
To ſtand's auſpicious *miſtreſs*. *Shak.*

Let us prepare
Some welcome for the *miſtreſs* of the houſe.
Shak.

Like the lily,
That once was *miſtreſs* of the field and flouriſh'd,
I'll hang my head and periſh. *Shak.*

He'll make your Paris louvre ſhake for it,
Were it the *miſtreſs* court of mighty Europe.
Shak.

I will not charm my tongue; I'm bound to ſpeak;
My *miſtreſs* here lies murther'd in her bed. *Shak.*
The late queen's gentlewoman! a knight's daughter!
To be her *miſtreſs' miſtreſs!* the queen's queen.
Shak.

—Rome now is *miſtreſs* of the whole world, ſea and land, to either pole. *Ben Johnſon.*—

Wonder not, ſov'reign *miſtreſs!* *Milton.*

Thoſe who aſſert the lunar orb preſides
O'er humid bodies, and the ocean guides;
With reaſon ſeem her empire to maintain
As *miſtreſs* of the rivers and the main. *Blackm.*

—What a miſerable ſpectacle, for a nation that had been *miſtreſs* at ſea ſo long! *Arbuthnot.* 2. A woman who has ſomething in poſſeſſion.—There had ſhe enjoyed herſelf while ſhe was *miſtreſs* of herſelf. *Sidney.*—

Ages to come, that ſhall your bounty hear,
Will think you *miſtreſs* of the Indies were.
Waller.

3. A woman ſkilled in any thing.—A letter deſires all young wives to make themſelves *miſtreſſes* of Wingate's Arithmetic. *Spectator.* 4. A woman teacher.—Erect public ſchools, provided with the beſt and ableſt maſters and *miſtreſſes*. *Swift.* 5. A woman beloved and courted.—They would not ſuffer the prince to confer with, or very rarely to ſee his *miſtreſs*. *Clarendon.*—

Nice honour ſtill engages to requite
Falſe *miſtreſſes*. *Granville.*

6. A term of contemptuous addreſs.—

Look you pale, *miſtreſs?*
Do you perceive the ghaſtneſs of her eye? *Shak.*

7. A whore; a concubine.

MISTRETTA, a town of Sicily, and a biſhop's ſee, in the valley of Demona; 50 miles ESE. of Palermo, and 64 W. of Meſſina. Lon. 32. 8. E. of Ferro. Lat. 38. 55. N.

* MISTRUST. *n. ſ.* [*mis* and *truſt.*] Diffidence; ſuſpicion; want of confidence.—

He needs not our *miſtruſt*, ſince he delivers
Our offices. *Shak.*
Not then *miſtruſt*, but tender love injoins
That I ſhould mind thee of. *Milton.*

* *To* MISTRUST. *v. a.* [*mis* and *truſt.*] To ſuſpect; to doubt; to regard with diffidence.—Will any man allege thoſe human infirmities, as reaſons why theſe things ſhould be *miſtruſted* or doubted of? *Hooker.*—

By a divine inſtinct, men's minds *miſtruſt*
Enſuing danger. *Shak.*
Fate her own book *miſtruſted* at the ſight.
Cowley.

—The relation of a Spartan youth, that ſuffered a fox concealed under his robe to tear out his bowels, is *miſtruſted* by men of buſineſs. *Brown.*—

The gen'rous train complies,
Nor fraud *miſtruſts* in virtue's fair diſguiſe.
Pope.

* MISTRUSTFUL. *adj.* [*miſtruſt* and *full.*] Diffident; doubting.—

I hold it cowardice
To reſt *miſtruſtful*. *Shak.*
Here the *miſtruſtful* fowl no harm ſuſpects.
Waller.

* MISTRUSTFULLY. *adv.* [from *miſtruſtful.*] With ſuſpicion; with miſtruſt.

* MISTRUSTFULNESS. *n. ſ.* [from *miſtruſtful.*] Diffidence; doubt.—Without him I found a weakneſs, and a *miſtruſtfulneſs* of myſelf, as one ſtrayed from his beſt ſtrength. *Sidney.*

* MISTRUSTLESS. *adj.* [from *miſtruſt.*] Confident; unſuſpecting.—

Where he doth in ſtream *miſtruſtleſs* play,
Veil'd with night's robe, they ſtalk the ſhore abroad. *Carew.*

(1.) * MISTY. *adj.* [from *miſt.*] 1. Clouded; overſpread with miſts.—

The morrow fair with purple beams,
Diſpers'd the ſhadows of the *miſty* night. *F. Q.*
Clip dead men's graves, and from their *miſty* jaws
Breathe foul contagious darkneſs in the air.
Shak.

—Parents overprize their children, while they behold them through the vapours of affection, which alter the appearance, as things ſeem bigger in *miſty* mornings. *Wotton.*—

Now ſmoaks with ſhow'rs the *miſty* mountain ground. *Pope.*

2. Obſcure; dark; not plain.

(2.) MISTY, in geography, a town of Aſiatic Turkey, in Caramania; 50 miles S. of Yurcup.

(3.) MISTY LAW, a mountain of Scotland, in Renfrewſhire, and in the pariſh of Lochwinnoch, 7 miles S. of Port-Glaſgow. It is 1240 feet above the ſea level, and affords from its ſummit an extenſive and varied proſpect over 12 counties, the Frith of Clyde, the iſles of Arran, Bute, Ailſa, &c.

* *To* MISUNDERSTAND. *v. a.* [*mis* and *underſtand.*] To miſconceive; to miſtake.—The words of Tertullian, as they are by them alleged, are *miſunderſtood*. *Hooker.*—He failed in diſtinguiſhing two regions, both called Eden, and altogether *miſunderſtood* two of the four rivers. *Raleigh.*—In vain do men take ſanctuary in ſuch *miſunderſtood* expreſſions as theſe. *South.*—This, if it be neglected, will make the reader very much miſtake and *miſunderſtand* his meaning. *Locke.*—Were they only deſigned to inſtruct the three ſucceeding generations, they are in no danger of being *miſunderſtood*. *Addiſon.*—The moſt exact rules and precepts are ſubject to be *miſunderſtood;* ſome at leaſt will miſtake their meaning. *Rogers.*

* MISUNDERSTANDING. *n. ſ.* [from *miſunderſtand.*] 1. Diſſenſion; difference; diſagreement.—There is a great *miſunderſtanding* betwixt the corpuſcular philoſophers and the chemiſts. *Boyle.*—Servants miſtake, and ſometimes occaſion *miſunderſtandings* among friends. *Swift.* 2. Error; miſconception.—Sever the conſtruction of the injury from the point of contempt, imputing it to *miſunderſtanding* or fear. *Bacon.*

* MISUSAGE. *n. ſ.* [from *miſuſe.*] 1. Abuſe; ill uſe. 2. Bad treatment.

* MISUSE. *n. ſ.* [from the verb.] 1. Evil or cruel treatment.—

Upon whoſe dead corpſe there was ſuch *miſuſe*,
Such beaſtly, ſhameleſs transformation,
By thoſe Welſhwomen done, as may not be
Without much ſhame retold. *Shak.*

2. Wrong or erroneous uſe.—How names taken for things miſlead the underſtanding, the attentive reading of philoſophical writers would diſcover, and that in words little ſuſpected of any ſuch *miſuſe*. *Locke*. 3. Miſapplication; abuſe.—We have reaſon to humble ourſelves before God by faſting and prayer, leſt he ſhould puniſh the *miſuſe* of our mercies. *Atterbury*.

* *To* MISUSE. *v. a.* [*meſuſer*, Fr. *mis* and *uſe*.] To treat or uſe improperly; to abuſe.—

You *miſuſe* the rev'rence of your place. *Shak.*

—It hath been their cuſtom ſhamefully to *miſuſe* the fervent zeal of men to religious arms. *Raleigh*.

Bacchus, that firſt from out the purple grape
Cruſh'd the ſweet poiſon of *miſuſed* wine. *Milt.*

—The weakneſs of Italy, once ſo ſtrong, was cauſed by the corrupt practices of the papacy, in depraving and *miſuſing* religion. *South*.

MISUSER. *n. ſ.* in law, an abuſe of any liberty or benefit; as "He ſhall make fine for his MISUSER." Old. Nat. Br. 149. By miſuſer a charter of a corporation may be forfeited; ſo alſo an office, &c.

* *To* MISWEEN. *v. n.* [*mis* and *ween*.] To miſjudge; to diſtruſt. Obſolete.—

Why then ſhould witleſs man ſo much *miſween?* *F. Queen.*

* *To* MISWEND. *v. n.* [*mis* and *wendan*, Sax.] To go wrong. Obſolete.—

Things miſcounſelled muſt needs *miſwend*. *Hubberd.*
In this maze ſtill wand'red and *miſwent*. *Fairfax.*

(1.) * MISY. *n. ſ.* A kind of mineral.—*Miſy* contains no vitriol but that of iron: it is a very beautiful mineral, of a fine bright yellow colour, of friable ſtructure, and reſembles the golden marcaſites. *Hill.*

(2.) MISY, in natural hiſtory, is a ſpecies of the chalcantha, a foſſile very common in Turkey and found in the mines of Chremnitz in Hungary. It is conſiderably firm, of an irregular texture, not compact; much reſembling ſome marcaſites, but wanting their hardneſs and weight. It is of no determinate ſhape or ſize; but is often found in ſmall detached maſſes, which are uſually broad, flat, and very rugged at the edges. As to its medical virtues, they are no other than thoſe of the green vitriol.

MIT. See MITTENS.

MI-TAN, a town of China, in Koei-tcheou.

MITCHEL, Joſeph, a dramatic writer, born in Scotland, in 1684. He was patronized by Sir Robert Walpole, yet died poor, owing to extravagance, in 1738. He publiſhed, 1. The Fatal Extravagance, a tragedy: 2. The Highland Fair, an opera, 8vo: 3. Poems, 2 vols. 8vo.

MITCHELLA, in botany, a genus of the monogynia order, belonging to the Tetrandria claſs of plants, and in the natutural method ranking in the 48th order *Aggregatæ*.

MITCHELL'S EDDY, the firſt cataract of the MERRIMACK, 20 miles from its mouth and 8 above Haverhill and Bradford Bridge. Thus far the Merrimack is navagable for ſhips of burden.

MITCHELSTOWN, a poſt town of Ireland, in the county of Cork, 102 miles from Dublin. It has a college for the ſupport of 12 decayed gentlemen and 12 gentlewomen, who have L.40 yearly, with handſome apartments, and a chaplain at L.100 a-year, with a houſe. Divine ſervice is daily performed in a neat chapel belonging to the college; the whole was founded by the late earl of Kingſton. Here is alſo a moſt magnificent ſeat of Lord Kingſborough. Fairs are held on the 30th July and 12th November.

MITCHIGAMIAS, a nation of N. American Indians, who, with the PIORIAS, inhabit the country on the W. bank of the ILLINOIS.

(1.) * MITE. *n. ſ.* [*mite*, Fr. *mijt*, Dutch.] 1. A ſmall inſect found in cheeſe or corn; a weevil.—Virginity breeds *mites*, like a cheeſe, conſumes itſelf to the very paring, and dies with feeding its own ſtomach. *Shak.*—

The poliſh'd glaſs, whoſe ſmall convex
Enlarges ten millions of degrees,
The *mite* inviſible elſe, of Nature's hand
Leaſt animal. *Phillips.*

—The idea of two is as diſtinct from the idea of three, as the magnitude of the earth from that of a *mite*. *Locke*. 2. The twentieth part of a grain.—The Seville piece of eight contains 13 pennyweight 21 grains and 15 *mites*, of which there are 20 in the grain, of ſterling ſilver, and is in value 43 Engliſh pence and 11 hundreths of a penny. *Arbuthnot*. 3. Any thing proverbially ſmall; the third part of a farthing.—

Though any man's corn they do bite,
They will not allow him a *mite*. *Tuſſer.*
Are you defrauded, when he feeds the poor,
Our *mite* decreaſes nothing of your ſtore. *Dryd.*
Did I e'er my *mite* with-hold
From the impotent and old. *Swift.*

4. A ſmall particle.—Put blue-bottles into an ant-hill, they will be ſtained with red, becauſe the ants thruſt in their ſtings, and inſtill into them a ſmall *mite* of their ſtinging liquor, which hath the ſame effect as oil of vitriol. *Ray on Creation.*

(2.) MITE, in Jewiſh antiquity, a ſmall piece of money mentioned in Luke xii. 59. and xxi. 2. In the Greek it is *χοδραντης*, i. e. *quadrans*, or a quarter of the Roman *denarius*; ſo that the mite was worth about 7 farthings of our money.

(3.) MITE, in zoology, § 1. *def.* 1. See ACARUS.

(1.) * MITELLA. *n. ſ.* A plant. *Miller.*

(2.) MITELLA, BASTARD AMERICAN SANICLE, a genus of the digynia order, belonging to the decandria claſs of plants; and in the natural method ranking under the 13th order, *Succulentæ*. The calyx is quinquefid; the corolla pentapetalous, and inſerted into the calyx; the petals pinnatified; the capſule uniloculor and bivalved, with the valves equal. There are two ſpecies, both natives of N. America, riſing with annual herbaceous ſtalks from 5 or 6 to 8 or 9 inches, and producing ſpikes of ſmall whitiſh flowers, whoſe petals are fringed on their edges. They are eaſily propagated by parting their roots; in a ſhady ſituation, and ſoft loamy ſoil.

MITER. See MITRE, § 3.

(1.) MITHRA, or } a god of Perſia and Chal-
(1.) MITHRAS, } dæa, ſuppoſed to be the ſun. He is generally repreſented as a young man, whoſe head is covered with a turban after the manner of the Perſians. He ſupports his knee upon a bull that lies on the ground, and one of whoſe

whoſe horns he holds in one hand, while with the other he plunges a dagger in his neck. The grand feſtival of Mithras was celebrated 6 days in the middle of the month Mihir, which began Sept. 30 and ended Oct. 30. On theſe days it was lawful for the kings of Perſia to get drunk and dance. See Mysteries.

(2.) Mithras, Feasts of, in antiquity, feaſts celebrated among the Romans in honour of Mithras. The moſt ancient inſtance of this worſhip among the Romans occurs in an inſcription dated in the 3d conſolate of Trajan, or about A. D. 101; on an altar thus inſcribed, *Deo Soli Mithræ*. But the worſhip of Mithras was not known in Egypt and Syria in the time of Origen, who died about A. D. 263. The worſhip of Mithras was proſcribed at Rome in 378, by order of Gracchus, prefect of the prætorium. According to M. Freret, the feaſts of Mithras were derived from Chaldæa, where they had been inſtituted for celebrating the entrance of the ſun into the ſign Taurus.

(1.) * **MITHRIDATE.** *n. ſ.* [*mithridate*, Fr.]—*Mithridate* is one of the capital medicines of the ſhops, conſiſting of a great number of ingredients. *Quincy*.—

But you of learning and religion;
And virtue, and ſuch ingredients, have made
A *mithridate*, whoſe operation
Keeps off, or cures, what can be done or ſaid.
Donne.

(2.) Mithridate is a compoſition, in form of an electuary, ſuppoſed to ſerve either as a remedy or a preſervative againſt poiſons. See Pharmacy. It takes its name from the inventor, Mithridates VII. king of Pontus. The receipt was found in his cabinet, written with his own hand, and was carried to Rome by Pompey. It was tranſlated into verſe by Damocrates, a famous phyſician; and afterwards by Galen, from whom we have it; though it is ſuppoſed to have undergone conſiderable alterations ſince the time of its royal preſciber.

(1.) * Mithridate mustard. *n. ſ.* [*thlaſpi*, Lat.] A plant. *Miller*.

(2.) Mithridate Mustard. See Thlaspi.

(3.) Mithridate Mustard, Bastard, , a ſpecies of Iberis.

MITHRIDATES, the name of 7 kings of Pontus. See Pontus.

Mithridates VII. ſurnamed Eupator and the Great, ſucceeded to the throne at the age of 11 years, about A. A. C. 123. The beginning of his reign was marked by ambition, cruelty, and artifice. He murdered his own mother, who had been left by his father coheireſs of the kingdom; and he fortified his conſtitution by antidotes againſt the poiſon with which his enemies at court might attempt to deſtroy him. He early inured his body to hardſhip, and employed himſelf in the moſt manly exerciſes, often remaining whole months in the country, and making frozen ſnow and the earth the place of his repoſe. Naturally ambitious and cruel, he ſpared no pains to acquire power and dominion. He murdered the two ſons whom his ſiſter Laodice had by Ariarthes king of Cappadocia, and placed one of his own children, only 8 years old, on the throne. Theſe proceedings alarmed Nicomedes king of Bithynia, who had married Loadice the widow of Ariarathes. He ſuborned a youth to be king of Cappadocia, as the third ſon of Ariarathes; and Laodice was ſent to Rome to impoſe upon the ſenate, and aſſure them that her 3d ſon was now alive, and that his claim to the kingdom of Cappadocia was juſt. Mithridates, on his part, ſent to Rome Gordius the governor of his ſon; who ſolemnly declared before the Roman people, that the youth who ſat on the throne of Cappadocia was the third ſon and lawful heir of Ariarathes, and that he was ſupported as ſuch by Mithridates. The Roman ſenate, to ſettle the diſpute, took Cappadocia from Mithridates, and Paphlagonia from Nicomedes. Theſe two kingdoms being thus ſeparated from their original poſſeſſors, were preſented with their freedom and independence; but the Cappadocians refuſed it, and received Ariobarzanes for king. Such were the firſt ſeeds of enmity between Rome and the king of Pontus. Mithridates, to deſtroy their power in Aſia, ordered all the Romans in his dominions to be maſſacred in one night; when no leſs than 150,000, according to Plutarch, or 80,000, as Appian mentions, were made the victims of his cruelty. This called aloud for vengeance. Aquilius, and ſoon after Sylla, marched againſt Mithridates with a large army. The former was made priſoner; but Sylla obtained a victory over the king's generals; and another deciſive engagement rendered him maſter of all Greece, Macedonia, Ionia, and Aſia Minor. This ill fortune was aggravated by the loſs of about 200,000 men, who were killed in the ſeveral engagements that had been fought; and Miteridates, weakened by repeated ill ſucceſs by ſea and land, ſued for peace; which he obtained on condition of defraying the expenſes which the Romans had incurred by the war, and of remaining ſatisfied with his paternal poſſeſſions. But Mithridates not long after took the field with an army of 140,000 infantry and 16,000 horſemen, which conſiſted of his own forces and thoſe of his ſon-in-law Tigranus king of Armenia. With ſuch a numerous army, he ſoon made himſelf maſter of the Roman provinces in Aſia; as the Romans, relying on his fidelity, had withdrawn the greateſt part of their armies. But the news of his warlike preparations were no ſooner heard, than Lucullus marched into Aſia, and blocked up the camp of Mithridates, who was then beſieging Cyzicus. The Aſiatic monarch eſcaped, and fled into the heart of his kingdom. Lucullus purſued him, and would have taken him priſoner after a battle, had not the avarice of his ſoldiers prevented. The appointment of Glabrio to the command, inſtead of Lucullus, was favourable to Mithridates, who recovered the greateſt part of his dominions. The ſudden arrival of Pompey, however, ſoon put an end to his victories. A battle was fought near the Euphrates, by moon-light, and an univerſal overthrow enſued. Mithridates, bold in his misfortunes, ruſhed through the thickeſt ranks of the enemy at the head of 800 horſemen, 500 of whom periſhed in the attempt to follow him. He fled to Tigranus, but that monarch now refuſed him an aſſylum. He, however, found a ſafe retreat among the Scythians; and though deſtitute of power, friends, and reſources, ye he ſtill meditated the overthrow of the Roman empire. But his wild projects were rejected by his followers, and he ſued for peace. Pompey declared, that, to obtain it, Mithridates muſt aſk it in perſon. Scorning to truſt to his enemy, he reſolved to conquer or die; but his ſubjects refuſed to follow him, and revolting, made his ſon Pharnaces king, who, according to ſome, ordered him to be put to death. This unnatural treatment broke the heart of Mithridates; he obliged his wife to poiſon herſelf, and attempted to do the ſame. But the frequent antidotes he had taken in youth fortified his conſtitution againſt the poiſon; and when this failed, he attempted to ſtab himſelf. The blow not proving mortal, a Gaul, at his own requeſt, gave him the fatal ſtroke, about A. A. C. 64. Such was the miſerable end of a man, who, according to Roman authors, proved a more powerful and indefatigable adverſary to Rome, than Pyrrhus, Perſeus, Antiochus, or even Hannibal himſelf. Mithridates has been commended for his virtues, and cenſured for his vices. As a commander, he deſerves the moſt unbounded applauſe; and it creates admiration to ſee him waging war, with ſuch ſucceſs, during ſo many years, againſt the moſt powerful people on earth, led to the field by a Sylla, a Lucullus, and a Pompey. The greateſt rejoicings took place in Rome and in the Roman armies at the news of his death: 12 weeks were appointed for public thankſgivings to the gods; and Pompey, who had ſent the firſt intelligence of his death to Rome, and partly haſtened his fall, was rewarded with uncommon honours. It is ſaid that Mithridates conquered 24 nations, whoſe different languages he knew, and ſpoke with the ſame fluency as his own. As a man of letters, he was acquainted with the Greek language, and even wrote in it a treatiſe on botany. His ſkill in phyſic is well known. Superſtition as well as nature had united to render him great; and Juſtin ſays his birth was accompanied by the appearance of two large comets, for 70 days ſucceſſively, whoſe ſplendor excelled that of the meridian ſun.

MITHRIDATICUM bellum, } one of the
The **MITHRIDATIC war,** } longeſt and
moſt celebrated wars ever carried on by the Romans againſt a foreign power. See Pontus.

* **MITIGANT.** *adj.* [*mitigans*, Lat.] Linient; lenitive.

* *To* **MITIGATE.** *v. a.* [*mitigo*, Lat. *mitiger*, Fr.] 1. To temper; to make leſs rigorous.—We could greatly wiſh, that the rigour of their opinion were allayed and *mitigated. Hooker.* 2. To alleviate; to make mild; to aſſuage.—

Miſhaps are maſter'd by adviſe diſcreet,
And counſel *mitigates* the greateſt ſmart.
Fairy Queen.

—All it can do is, to deviſe how that which muſt be endured may be *mitigated. Hooker.* 3. To mollify; to make leſs ſevere; to ſoften.—

That I may *mitigate* their doom,
On me deriv'd. *Milton.*

4. To cool; to moderate.—A man has frequent opportunity of *mitigating* the fierceneſs of a party. *Spectator.*

* **MITIGATION.** *n. ſ.* [*mitigatio*, Lat. *mitigation*, French; from *mitigate.*] Abatement of a thing penal, harſh or painful.—The king wou not have one penny abated of that granted to hi by parliament, becauſe it might encourage oth countries to pray the like releaſe or *mitigati* *Bacon.*—They committed them, and ſuffered the to languiſh long in priſon, to extort from the great fines and ranſoms, which they termed co poſitions and *mitigations*. *Bacon.*

MITOC, a lake of Thibet, 36 miles round.

MITOMBA, a kingdom of Africa, in Sier Leona, on the banks of the Sierra Leona.

MITRA, in Roman antiquity, a cap or cove ing for the head, worn by the ladies, and ſom times by the men; but it was looked upon as mark of effeminacy in the laſt, eſpecially when was tied upon their heads.

(1.) * **MITRE.** *n. ſ.* [*mitre*, Fr, *mitra*, Latin. 1. An ornament for the head.]

Nor Pantheus, thee, thy *mitre*, nor the band
Of awful Phœbus. *Dryden*

2. A kind of epiſcopal crown.—Biſhopricks o burning, *mitres* or faggots, have been the reward of different perſons, according as they pronounced theſe conſecrated ſyllables or not. *Watts.*

(2.) *A* Mitre is a ſacerdotal cap pointed an cleft at top, worn by biſhops and certain abbot on ſolemn occaſions. See *Plate* 179. The high prieſt among the Jews wore a mitre, as did alſo the inferior prieſts.

(3.) * Mitre. Miter. *n. ſ.* [Among workmen.] A kind of joining two boards together. *Miller.*

(4.) Mitre, in architecture, is an angle that is juſt 45 degrees, or half a right one. If the angle be a quarter of a right angle, they call it a *half-mitre*. To deſcribe ſuch angles, they have an inſtrument called the *mitre ſquare;* with this they ſtrike mitre lines on their quarters or battens; and for diſpatch they have a *mitre box*, as they call it, which is made of two pieces of wood, each about an inch thick, one nailed upright on the edge of the other; the upper piece hath the mitre lines ſtruck upon it on both ſides, and a kerf to direct the ſaw in cutting the mitre joints readily, by only applying the piece into this box.

(5.) Mitre is uſed by the writers of the Iriſh hiſtory for a ſort of baſe money, which was very common there about 1270, and for 30 years before and after. There were ſeveral other pieces called, according to the figures impreſſed upon them, *roſaries*, *lionades*, *eagles*, &c. They were imported from France and other countries, and were ſo much below the proper currency, that they were not worth a halfpenny each. They were at length decried in 1300, and good coins ſtruck in their place. Theſe were the firſt Iriſh coins in which the ſceptre was left out. They were ſtruck in the reign of Edward, the ſon of Henry III. and are ſtill found among the other antiquities of that country. They have the king's head in a triangle full-faced. The penny, when well preſerved, weighs 22 grains; the halfpenny 10½ grains.

* **MITRED.** *adj.* [*mitre*, French: from *mitre.*] Adorned with a mitre.—

Shall the loud herald our ſucceſs relate,
Or *mitred* prieſt appoint the ſolemn day? *Prior.*

—*Mitred* abbots, among us, were thoſe that were exempt from the dioceſan's juriſdiction, as having within their own precincts epiſcopal authority, and being lords in parliament were called abbots ſovereign. *Ayliffe*.

MITREKE, a town of Arabia, in Oman.

MITROVATZ, a town of Sclavonia.

MITRY, a town of France, 12 m. N. of Paris.

MITTAU, or } the capital of Courland. It is
MITTAWS, } ſtrongly fortified; but was taken by the Swedes in 1701, and by the Muſcovites in 1706. Lon. 23. 51. E. Lat. 56. 44. N.

MITTELBERG, a mountain of Suabia.

MITTELBUCHEN, a town of Hanau.

MITTELHAUSEN, a town of Upper Saxony.

MITTENBERG, a town of Auſtria.

* MITTENS. *n. ſ.* [*mitaine*, French.] It is ſaid that *mit* is the original word; whence *mitten*, the plural, and afterwards *mittens*, as in *chicken*. 1. Coarſe gloves for the winter.—December muſt be expreſſed with a horrid aſpect, as alſo January clad in Iriſh rug, holding in furred *mittens* the ſign of Capricorn. *Peacham*. 2. Gloves that cover the arm without covering the fingers. 3. To handle one without *mittens*. To uſe one roughly. A low phraſe. *Ainſw.*

* MITTENT. *adj.* [*mittens*, Latin.] Sending forth; emitting.—The fluxion proceedeth from humours peccant in quantity or quality, thruſt forth by the part *mittent* upon the inferior weak parts. *Wiſeman*.

MITTENWALD, a town of Bavaria.

MITTER, a town of Auſtria, 3 m. E. of Rotz.

MITTERBURG, a town and county of Maritime Auſtria, in Iſtria, 30 miles SE. of Trieſte.

(1.) * MITTIMUS. [Lat.] A warrant by which a juſtice commits an offender to priſon.

(2.) Mittimus, in law, hath two ſignifications: 1. A writ for removing or transferring of records from one court to another. 2. A precept, or command in writing, under the hand and ſeal of a juſtice of the peace, directed to the goaler of ſome priſon, for the receiving and ſafe keeping of an offender charged with any crime, until he be delivered by due courſe of law.

MITYLENÆ, } or Mytelene, in ancient geo-
MITYLENE, } graphy, a powerful and affluent city, capital of the iſland of Leſbos. It received its name from *Mitylene*, the daughter of Macareus, a king of the country. It is greatly commended by the ancients for the ſtatelineſs of its buildings and the fruitfulneſs of its ſoil, but more particularly for the great men it produced: Pittacus, Alcæus, Sappho, Terpander, Theophanes, Hellanicus, &c. were all natives of Mitylene. It was long a ſeat of learning; and with Rhodes and Athens, had the honour of having educated many of the great men of Rome and Greece. In the Peloponneſian war, the Mityleneans ſuffered greatly for their revolt from Athens; and in the Mithridatic wars they had the boldneſs to reſiſt the Romans, and diſdain the treaties which had been made between Mithridates and Sylla. See Metelin.

MITYLENEANS, the people of Mitylene.

MITYLUS. See Mytilus.

MIUME, a river of the United States, which runs into the Ohio.

MIUS, a river of Ruſſia, running into the Azoph.

(1.) *To* MIX. *v. n.* [*miſſchen*, Dutch; *miſceo*, Lat.] 1. To unite with ſomething elſe.—Ephraim hath *mixed* himſelf among the people. *Hoſ.* vii. 8. 2. To unite various ingredients into one maſs.—A *mixed* multitude went up with them, and flocks and herds. *Exod.* xii. 38.—They were all *mixt* together. 2 *Eſdr.*—

Air, and ye elements, the eldeſt birth
Of nature's womb, that in quaternion run
Perpetual circle, multiform; and *mix*
And nouriſh all things. *Milton*.

3. To form of different ſubſtances or kinds.—I have choſen an argument, *mixt* of religious and civil conſiderations; and likewiſe *mixt* between contemplative and active. *Bacon*. 4. To join; to mingle; to confuſe.—

Brothers, you *mix* your ſadneſs with ſome fear. *Shak.*
—Order, ſo contriv'd as not to *mix*
Taſtes, not well join'd, inelegant. *Milton*.

(2.) * *To* Mix. *v. n.* To be united into one maſs, not by junction of ſurfaces, but by mutual intromiſſion of parts.—

But is there yet no other way, beſides
Theſe painful paſſages, how we may come
To death, and *mix* with our connatural duſt?
Milton.

If ſpirits embrace,
Total they *mix*, union of pure with pure
Deſiring; nor reſtrain'd conveyances need,
As fleſh to *mix* with fleſh, or ſoul with ſoul.
Milton.

(1.) * MIXEN. *n. ſ.* [*mixen*, Saxon.] A dunghill; a layſtal.—

(2.) Mixen. See Helen's, St, N° 1.

MIXT, or mixt body, in chemiſtry, that which is compounded of different elements or principles.

MIXTECAS, an ancient people of Mexico, who inhabited a province 120 miles from the capital.

* MIXTION. *n. ſ.* [*mixtion*, Fr. from *mix*.] Mixture; confuſion of one thing with another.—Others perceiving this rule to fall ſhort, have pieced it out by the *mixtion* of vacuity among bodies. *Digby*.—They are not to be lightly paſt over as elementary or ſubterraneous *mixtions*. *Brown*.

* MIXTLY. *adj.* [from *mix*.] With coalition of different parts into one.

(1.) * MIXTURE. *n. ſ.* [*mixtura*, Latin.] 1. The act of mixing; the ſtate of being mixed.—O happy *mixture*, wherein things contrary do qualify and correct the one the danger of the other's exceſs. *Hooker*.—Thoſe liquors are expelled out of the body which, by their *mixture*, convert the aliment into an animal liquid. *Arbuthnot*.—

I, by baleful furies led,
With monſtrous *mixture* ſtain'd my mother's bed. *Pope*.

2. A maſs formed by mingled ingredients.—Come vial—What if this *mixture* do not work at all? *Shak.*—There is alſo a *mixture* of good and evil wiſely diſtributed by God, to ſerve the ends of his providence. *Atterbury*. 3. That which is added and mixed.—Neither can God himſelf be other-

wiſe underſtood, than as a mind free and diſentangled from all corporeal *mixtures*, perceiving and moving all things. *Stillingfleet.*—Cicero doubts whether it were poſſible for a community to exiſt, that had not a prevailing *mixture* of piety in its conſtitution. *Addiſon.*

(2.) Mixture, (§ 1. *def.* 2.) is a compound of ſeveral different bodies in the ſame maſs. Simple mixture, conſiſts only in the ſimple appoſition of parts of different bodies to each other. Thus, when powders of different kinds are rubbed together, the mixture is only ſimple, and each of the powders retains its particular characters. In like manner, when oil and water are mixed together, tho' the parts of both are confounded, ſo that the liquor may appear to be homogeneous, we cannot ſay that there is any more than a ſimple appoſition of the parts, as the oil and water may very eaſily be ſeparated. But the caſe is very different when bodies are *chemically* mixed; for then one or both bodies aſſume new properties, and can by no means be diſcovered in their proper form without a particular chemical proceſs adapted to this purpoſe. Hence chemical mixture is attended with many phenomena which are never obſerved in ſimple mixtures, ſuch as heat, efferveſcence, &c. To chemical mixture belongs the union of acids and alkalies, the amalgamation of metals, ſolution of gums, &c. and upon it depends many of the principal operations of Chemistry. See that article, *Index*.

(3.) Mixture, in pharmacy, a medicine which differs from a julep in this reſpect, that it receives into its compoſition not only ſalts, extracts, and other ſubſtances diſſoluble in water; but alſo earths, powders, and ſuch ſubſtances as cannot be diſſolved.

MIYUN, a town of China, in Pe-tcheli.

MIZA, a river of Bohemia, in Beraun.

MIZAEL, a town of Norway.

MIZEN. See Mizzen.

MIZENHEAD, 2 capes of Ireland; 1. on the SW. point of Cork: 2. on the E. coaſt of Wicklow.

* MIZMAZE. *n. ſ.* [A cant word, formed from *maze* by reduplication.] A maze; a labyrinth.—Thoſe who are accuſtomed to reaſon have got the true key of books, and the clue to lead them through the *mizmaze* of variety of opinions and authors to truth. *Locke.*

MIZQUIHUACAN, a province of Mexico.

(1.) MIZRAIM, or Misraim, the 2d ſon of Ham, and grandſon of Noah; ſuppoſed to have been the ſame with Menes, the 1ſt king of Egypt. See Menes, and Egypt, § 8. Hence

(2.) Mizraim, or Misraim, is uſed in ſcripture to denote the Higher and Lower Egypt, which ſee. It ſometimes occurs ſingular, *Mazor*: 2 Kings xix. Iſaiah xix. Micah vii.

MIZTLI. See Mexico, No I, § 13.

(1.) * MIZZEN. *n. ſ.* [*mezaen*, Dutch.] The *mizzen* is a maſt in the ſtern or back part of a ſhip: in ſome large ſhips there are two ſuch maſts, that ſtanding next the main maſt is called the main *mizzen*: and the other near the poop the bonaventure *mizzen*: the length of a *mizzen* maſt is half that of the main maſt, or the ſame with that of the main top maſt from the quarter deck, and the length of the *mizzen* top maſt is half that. *Bailey.*—A commander at ſea had his leg fractured by the fall of his *mizzen* top maſt. *Wiſeman.*

(2.) Mizzen. See Mast, § 6.

* MIZZY. *n. ſ.* A bog; a quagmire. *Ainſw.*

MLADA, a town of Bohemia.

MLODE, a town of Poland, in Kiow.

MNAKEB, a town of Arabia, Yemen.

MNEMON. See Artaxerxes, N° 2.

* MNEMONICKS. *n. ſ.* [μνημονικη.] The act of memory.

MNEMOSYNE, in the mythology, the daughter of Cœlus and Terra. She married Jupiter, by whom ſhe had the nine Muſes. *Mnemoſyne* ſignifies "memory;" and therefore the poets rightly call Memory the mother of the Muſes, becauſe it is to that mental endowment that mankind are indebted for their progreſs in ſcience.

MNIUM, marsh moss; a genus of the natural order of muſci, belonging to the cryptogamia claſs of plants. The anthera is operculated; the calyptra ſmooth; the female capitulum naked and powdery, remote. There are 18 ſpecies, of which 7 are natives of Britain; but none have any remarkable property except the two following:

1. Mnium fontanum is an elegant moſs, frequent in bogs, and on the borders of cold ſprings. It is from 2 to 4 inches high: the ſtalks are ſimple at the baſe, and covered with a ruſty down; but higher up are red, and divided into ſeveral round, ſingle, taper branches, which proceed nearly from the ſame point. The leaves are not more than one 12th of an inch long, lanceolate and acute, of a whitiſh green colour; and ſo thinly ſet, that the red ſtalk appears between them. This moſs, as it may be ſeen at a conſiderable diſtance, is a good mark to lead to the diſcovery of clear and cold ſprings. Linnæus informs us, that the Laplanders are well acquainted with this ſign. Mr Withering informs us, that wherever this moſs grows, a ſpring of freſh water may be found without much digging. See *Plate* CCXXX.

2. Mnium hygrometricum grows in woods, heaths, garden-walks, walls, old trees, decayed wood, and where coals or cinders have been laid. It is ſtemleſs, hath tips inverſely egg-ſhaped, nodding, and bright yellow. If the fruit-ſtalk is moiſtened at the baſe with a little water or ſteam, the head makes three or four revolutions: if the head is moiſtened, it turns back again.

(1.) * MO. *adj.* [*ma*, Saxon; *mae*, Scottiſh.] Making greater number; more. Obſolete.—

Calliope and Muſes *mo*. *Spenſer.*

With oxbows and oxyokes, with other things *mo*,
For oxteem and horſeteem in plough for to go.
Tuſſer.

(2.) * Mo. *adv.* Further; longer. Obſolete.—

Sing no more ditties, ſing no *mo*
Of dumps ſo dull and heavy. *Shak.*

(1.) MOAB, in ancient geography, a country of Arabia Petræa; ſo called from Moab the ſon of Lot, to whoſe poſterity this country was allotted by divine appointment, Deut. ii. 9. It was originally occupied by the Emims, a race of giants extirpated by the Moabites, *ib.* 10. Moab anciently ly lay to the S. of Ammon, before Sihon the Amorite ſtripped both nations of a part of their territory, afterwards occupied by the Iſraelites, Numb. xxii; and then Moab was bounded by the Arnon on the N. the Aſphaltites on the W. the brook Zared and the mountains Abarim on the E. See Mab.

(2, 3.) Moab, in modern geography, a towns of Arabia: 1. in Hadramaut, 84 miles W. of Hadramaut: 2. in Yemen, the reſidence of the prince, built in 1708, between Damar and Sanaa.

MOABITES, the deſcendants of Moab, and inhabitants of the country ſo named. They had frequent wars with the Iſraelites.

MOAGES, 9 iſlands on the N. coaſt of South America, in the Gulf of Venezuela.

* MOAN. *n. ſ.* [from the verb.] Lamentation; audible ſorrow; grief expreſſed in words or cries.

Nor do I now make *moan* to be abridg'd
From ſuch a noble rate. *Shak.*
The freſh ſtream ran by her, and murmer'd her *moans*;
The ſalt tears fell from her, and ſoften'd the ſtones. *Shak.*
Sullen *moans*,
Hollow groans,
And cries of tortur'd ghoſts. *Pope.*

(1.) * *To* Moan. *v. a.* [from *mænan*, Saxon, to grieve.] To lament; to deplore.

(2.) * *To* Moan. *v. n.* To grieve; to make lamentation.—

The gloomy jail,
Unpity'd and unheard where miſery *moans*.
Thomſon.

(1.)* MOAT. *n. ſ.* [*motte*, Fr. a mound; *mota*, low Latin.] A canal of water round a houſe or caſtle for defence.—The caſtle I found of good ſtrength, having a great *moat* round about it. *Sidney.*—

Your valour bravely did th' aſſault ſuſtain,
And fill'd the *moat's* and ditches with the ſlain.
Dryden.
No walls were yet, nor fence, nor *moat*, nor mount,
Nor drum was heard. *Dryden.*

(2.) Moat, or Ditch, in fortification. The bank of the moat, next the rampart, is called the *ſcarp*; and the oppoſite one, the *counterſcarp*. A dry moat round a large place, with a ſtrong garriſon, is preferable to one full of water; becauſe the paſſage may be diſputed inch by inch, and the beſiegers, when lodged in it, are continually expoſed to the bombs, granades, and other fireworks, which are thrown inceſſantly from the rampart into their works. In the middle of dry moats, there is ſometimes another ſmall one, called *cunette*; which is generally dug ſo deep till they find water to fill it. The deepeſt and broadeſt moats are accounted the beſt: but a deep one is preferrable to a broad one: the ordinary breadth is about 20 fathoms, and the depth about 16. To drain a moat that is full of water, they dig a trench deeper than the level of the water, to let it run off; and then throw hurdles upon the mud and ſlime, covering them with earth or bundles of ruſhes, to make a firm paſſage. See Fortification, *Part* I.

(3.) Moat. See Moatagrenoge.

* *To* Moat. *v. a.* [*motter*, Fr. from the noun.] To ſurround with canals by way of defence.—At the *moated* Grange reſides this dejected Mariana. *Shak.*—

An arm of Lethe, with a gentle flow,
The palace *moats*: *Dryden.*

—He can hardly approach greatneſs, but, as a *moated* caſtle, he muſt firſt paſs the mud and filth with which it is encompaſſed. *Dryden.*

MOATAGRENOGE, or Moat, a town of Ireland, in W. Meath, Leinſter; 52 miles from Dublin.

MOATAZALITES, or Separatists, a religious ſect among the Turks, who deny all forms and qualities in the Divine Being; or who diveſt God of his attributes. There are two opinions among the Turkiſh divines concerning God. The firſt admits metaphyſical forms or attributes; as, that God has wiſdom, by which he is wiſe; power, by which he is powerful; eternity, by which he is eternal, &c. The ſecond allows God to be wiſe, powerful, eternal; but will not allow any form or quality in God, for fear of admitting a multiplicity. Thoſe who follow this latter opinion are called *Moatazalites*; they who follow the former, *Sephalites*. The Moatazalites alſo believe that the word of God was created *in ſubjecto* as the ſchoolmen term it, and to conſiſt of letters and ſound; copies thereof being written in books to expreſs or imitate the original; they deny abſolute predeſtination, and affirm that man is a free agent. This ſect is ſaid to have firſt invented the ſcholaſtic divinity, and is ſubdivided into no leſs than 20 inferior ſects, who mutually brand one another with infidelity.

(1.) * MOB. *n. ſ.* [contracted from *mobile*, Lat.] The croud; a tumultuous rout.—A monſter in a Bartholomew fair for the *mob* to gape at. *Dryden.*

Dreams are but interludes, which fancy makes,
When monarch reaſon ſleeps, this mimick wakes;
Compounds a medly of disjointed things,
A court of coblers, and a *mob* of kings. *Dryd.*

—A cluſter of *mob* were making themſelves merry with their betters. *Addiſon.*

(2.) * Mob. *n. ſ.* [from *moble.*] A kind of female undreſs for the head.

* *To* Mob. *v. a.* [from the noun.] To haraſs, to overbear by tumult.

* MOBBISH. *adj.* [from *mob.*] Mean; done after the manner of the mob.

* MOBBY. *n. ſ.* An American drink made of potatoes.

(1.) MOBILE, a large navigable river of N. America, formed by the junction of the Alabama, and Tombeckbee, in the SW. part of Georgia, in Lon. 87. 55. W. Lat. 31. 26. N. Thence running a SW. courſe into W. Florida, it falls into the Gulf of Mexico at Mobile Point, 33 miles below Mobile, and forms Mobile Bay.

(2.) Mobile, a city of W. Florida, on the W. bank of the above river, 30 miles WNW. of Penſacola. This city, when in poſſeſſion of the Britiſh, ſent annually to London ſkins and furs to the value of about L.15,000. It ſurrendered to the Spaniards, in 1780; under whom it has greatly declined.

(3.) **Mobile**, an iſland of W. Florida, formed by the divided ſtream of the Mobile; 26 miles long and 5 broad. Lon. 87. 55. W. Lat. 31. 0. N.

(4.) **Mobile.** *n. ſ.* [*mobile*, French.] The populace; the rout; the mob.—Long experience has found it true of the unthinking *mobile*, that the cloſer they ſhut their eyes, the wider they open their hands. *South.*—The *mobile* are uneaſy without a ruler, they are reſtleſs with one. *L'Eſtrange.*

(5.) **Mobile**, *adj.* [Lat.] moveable, any thing ſuſceptible of motion, or that is diſpoſed to be moved either by itſelf, or by ſome other prior *mobile* or mover.

(6.) **Mobile, Perpetuum.** See Motion, § 9.

(7.) **Mobile, Primum**, in the ancient aſtronomy, was a ninth heaven or ſphere, imagined above thoſe of the planets and fixed ſtars. This was ſuppoſed to be the firſt mover, and to carry all the lower ſpheres round along with it; by its rapidity communicating to them a motion whereby they revolved in 24 hours. But the diurnal revolution of the planets is now accounted for, without the aſſiſtance of any ſuch *primum mobile.*

* **MOBILITY.** *n. ſ.* [*mobilité*, French; *mobilitas*, Latin.] 1. *Mobility* is the power of being moved. *Locke.*—Iron, having ſtood long in a window, being thence taken, and by a cork balanced in water, where it may have a free *mobility*, will bewray a kind of inquietude. *Wotton.*—The preſent age hath attempted perpetual motions, whoſe revolutions might out-laſt the exemplary *mobility*, and out-meaſure time itſelf. *Brown.*—

You tell it is ingenite, active force,
Mobility, or native power to move;
Words which mean nothing. *Blackmore.*

2. Nimbleneſs; activity.—The Romans had the advantage by the bulk of their ſhips, and the fleet of Antiochus in the ſwiftneſs and *mobility* of theirs. *Arbuth.* 3. [In cant language.] The populace.—She ſingled you out with her eye as commander in chief of the *mobility*. *Dryden.* 4. Fickleneſs; inconſtancy. *Ainſ.*

* *To* **MOBLE.** *v. a.* [ſometimes written *mable*. perhaps by a ludicrous alluſion to the French *je m' habille.*] To dreſs groſsly or inelegantly.

But who, oh! who hath ſeen the *mobled* queen
Run barefoot up and down? *Shak.*

MOCAUMPOUR, a territory of India, and its capital N. of Bengal. The city lies 120 miles N. of Patna. Lon. 85. 37. E. Lat. 27. 35. N.

MOCCA, a town of Maritime Auſtria, in the Belluneſe, in a diſtrict ſurrounded with mountains, and almoſt inacceſſible.

MOCHA, an iſland on the coaſt of Chili.

MOCHALIS, a town of Spain in New Caſtile; 17 miles NW. of Molina.

MOCHE, a town of Peru, in Lima.

(1.) **MOCHO**, Moco, or Mokha, a kingdom of Arabia Felix, extending along the moſt ſouthern coaſt. That part which lies next the Red ſea is a dry barren deſart, in ſome places 10 or 12 leagues over; but bounded by mountains, which, being well watered, enjoy an almoſt perpetual ſpring; and yield coffee, corn, grapes, myrrh, frankincenſe, caſſia, balm, gum, mangos, dates, pomegranates, &c. The weather is ſo hot and ſultry in ſummer, eſpecially when the S. wind blows, that it would be inſupportable, if it wer not mitigated by the cool breezes that blow fro the mountains on the N. or the Red and Arabic Seas on the W. and E. The heat in wint is equal to that of our warmeſt ſummers: and i is very ſeldom that either clouds or rain are ſeen

(2.) **Mocho, Moco**, or **Mokha**, a town an port on the Red Sea, capital of the above kingdom: by ſome ſuppoſed to be the Musa o Muza of Ptolemy. It has conſiderable trad and contains about 10,000 inhabitants, Jew Armenians, and Mahommedans; is ſurrounde with walls after the ancient manner; and has gates and 4 towers, the laſt mounted with cannon. This city is now the emporium for th trade of all India to the Red Sea. The trade wa removed hither from Aden, in conſequence of th prophecy of a ſheik, much revered by the peopl who foretold that it would ſoon become a pla of extenſive commerce, notwithſtanding its diſadvantageous ſituation. It ſtands cloſe to the ſe in a large, dry, and ſandy plain, that affords n good water within 20 miles of the city; wha they drink comes from Moſa, and coſts as dear a ſmall-beer in England. The water near the tow produces a worm, called dracunculus, abou 2½ feet long. It is very ſlender, and breeds i the fleſhy parts of the body; in extracting it grea care muſt be uſed, the conſequence being dangerous if any part of it remains in the body. Se Dracunculi. The buildings are lofty, and tolerably regular, having a pleaſant aſpect fro Mecca. The ſteeples of ſeveral moſques are ver high, and ſeen at a great diſtance. The market are well ſtored with beef, mutton, lamb, kid camels, and antelopes fleſh, fowls, Guinea hens patridges, and pigeons. The ſea affords plenty of fiſh, but not ſavoury; which ſome thin proceeds from the extreme ſaltneſs of the wate and the nature of their aliment. The market are alſo ſtocked with fruit, ſuch as grapes, peaches, apricots, quincies, and nectarines; althoug neither ſhrub nor tree is to be ſeen near the tow except a few date trees. Frequently no rain fal in two or three years, and ſeldom more than ſhower or two in a year; but in the mountain about 20 miles diſtant, the earth is watered wit a gentle ſhower every morning, which makes th valleys fertile in corn and fruits. The Arab inhabitants, though remarkably grave and ſuperſti ous, are ſaid to be extremely covetous and hypocritical; robbing, thieving, and committing piracy, without remorſe. The Engliſh and Dutc companies have handſome houſes here, and car on a great trade in coffee, olibanum, myrrh aloes, liquid ſtorax, white and yellow arſenic, gum arabic, mummy, balm of Gilead, and othe drugs. One inconvenience, however, they ſuſtain from the violence and exactions of the Arabian princes; but the king's cuſtoms are eaſy, bein fixed at 3 per cent to Europeans. Of the [illegible] at Mocha, the moſt current is the camaſſic, which riſes and falls in value at the banker's diſcretion: they are from 50 to 80 for a current dollar, which is but an imaginary ſpecies, being always reckoned one and a half per cent lower than Spaniſh dollars. Their weights are very various according to the nature of the thing to be weighed; they have the banian weights, the magnet, the ambergris, the agala, the gold and ſilver weights, &c.

(1.) * Mocho Stone. *n. ſ.* [from *Mocha*, therefore more properly *Mocha ſtone.*]—*Mocho ſtones* are related to the agat, of a clear horny grey, with declinations repreſenting moſſes, ſhrubs, and branches, black, brown, red, in the ſubſtance of the ſtone. *Woodward.*

(2.) Mocho Stone. See Pebble.

(1.) MOCHRUM, a pariſh of Scotland, in Wigtonſhire, 10 miles long from E. to W. and from 4 to 5 broad. The ſurface is partly level, partly hilly; the ſoil partly fertile, partly barren; the climate very healthful; and the people are long-lived. A woman died lately aged 105. The population in 1795 was 1400; and had increaſed 572 ſince 1755; owing to the erection of a new village, called Port-William, and other improvements on the eſtate of Sir Wil. Maxwell, who is the chief proprietor. The number of horſes is about 280; of black cattle about 1500, and of ſheep 5000. About 6000 buſhels of oats and 10,800 of bear, are annually exported to Whitehaven and Liverpool. The only antiquities are a large earthen mound ſurrounded by a deep ditch; the relics of an Anglo-Saxon camp, and chapel; and the ancient caſtle of Mochrum, whoſe walls are ſtill very ſtrong and almoſt entire.

(2.) Mochrum, a village in the above pariſh, 9 miles W. of Wigton.

(1.) * MOOK. *adj.* Falſe; counterfeit; not real.—The *mock* aſtrologer, El aſtrologo fingido. *Dryden.*—That ſuperior greatneſs and *mock* majeſty, which is aſcribed to the prince of fallen angels, is admirably preſerved. *Spect.*

(2.) * Mock. *n. ſ.* [from the verb.] 1. Ridicule; act of contempt, fleer; ſneer; gibe; flirt.—

Tell the pleaſant prince this *mock* of his
Hath turn'd his balls to gun-ſtones. *Shak.*
Oh 'tis the ſpight of hell, the fiend's arch
mock,
To lip a wanton, and ſuppoſe her chaſte. *Shak.*

Fools make a *mock* at ſin. *Prov.* xiv. 9.—What ſhall be the portion of thoſe who have affronted God, derided his word, and made a *mock* of every thing that is ſacred? *Tillotſon.*—

Colin makes *mock* at all her piteous ſmart. *Gay.*

2. Imitation; mimickry.—

Now reach a ſtrain, my lute,
Above her *mock*, or be for ever mute. *Craſhaw.*

(1.) * *To* Mock. *v. a.* [*mocquer*, French; *moccio*, Welſh.] 1. To deride; to laugh at; to ridicule.—

All the regions
Do ſeemingly revolt; and who reſiſt
Are *mock'd* for valiant ignorance,
And periſh conſtant fools. *Shak.*
Many thouſand widows
Shall this his mock *mock* out of their dear huſbands;
Mock mothers from their ſons, *mock* caſtles
down. *Shak.*
We'll diſhorn the ſpirit,
And *mock* him home to Windſor. *Shak.*

I am as one *mocked* of his neighbour. *Job* xii. 4.
2. To deride by imitation; to mimick in contempt.—

I long till Edward fall by war's miſchance,
For *mocking* marriage with a dame of France.
Shak.

3. To defeat; to elude.—

My father is gone into his grave,
And with his ſpirit ſadly I ſurvive,
To *mock* the expectations of the world. *Shak.*

4. To fool; to tantalize; to play on contemptuouſly.—

He will not
Mock us with his bleſt ſight. *Milton.*
Why do I overlive?
Why am I *mock'd* with death, and lengthen'd out
to deathleſs pain? *Milton.*
Heav'ns fuller influence *mocks* our dazzled
ſight
Too great its brightneſs. *Prior.*

(2.) * *To* Mock. *v. n.* To make contemptuous ſport.—

Now a time is come to *mock* at form. *Shak.*

—A ſtallion horſe is as a *mocking* friend; he neigheth under every one. *Ecclus.* xxiii. 6.—A *mocking* to all countries. *Ezek.* xxii. 4.—When thou *mockeſt*, ſhall no man make thee aſhamed? *Job.*

* MOCKABLE. *adj.* [from *mock*.] Expoſed to deriſion.—Good manners at the court are as ridiculous in the country, as the behaviour of the country is moſt *mockable* at court. *Shak.*

MOCKCHAREKA, a river of Ruſſia.

* MOCKEL. *adj.* [the ſame with *mickle.*] See Mickle. This word is variouſly written *mickle*, *mickel*, *mochil*, *mochel*, *muckle.*] Much; many.—

Mockel maſt to the huſband did yield. *Spenſ.*

* MOCKER. *n. ſ.* [from *mock.*] 1. One who mocks; a ſcorner; a ſcoffer; a derider.—Our very prieſts muſt become *mockers*, if they ſhall encounter ſuch ridiculous ſubjects as you are. *Shak.* —Let them have a care how they intrude upon ſo great and holy an ordinance, in which God is ſo ſeldom mocked but it is to the *mocker's* confuſion. *South.* 2. A deceiver; an eluſory impoſtor.

* MOCKERY. *n. ſ.* [*mocquerie*, French.] 1. Deriſion; ſcorn; ſportive inſult.—

The forlorn maiden, whom your eyes have
ſeen
The laughing-ſtock of fortune's *mockeries*,
Am the only daughter of a king and queen.
Fairy Queen.

—Why ſhould publick *mockery* in print be a better teſt of truth than ſevere railing ſarcaſms. *Watts.* —Grace at meals is now generally ſo performed, as to look more like a *mockery* upon devotion, than any ſolemn application of the mind unto God. *Law.* 2. Ridicule; contemptuous merriment.—A new method they have of turning things that are ſerious into *mockery*. *Hooker.* 3. Sport; ſubject of laughter.—

What cannot be preſerv'd when fortune takes,
Patience her injury a *mockery* makes. *Othello.*

—Of the holy place they made a *mockery*. 2. *Mac.* viii. 17. 4. Vanity of attempt; deluſory labour; vain effort.

It is as the air, invulnerable;
And our vain blows malicious *mockery*. *Shak.*

5. Imitation; counterfeit appearance; vain ſhow.

Like ruſty mail in monumental *mockery*. *Shak.*
What though no friends in ſable weeds ap-
pear,

And bear about the *mockery* of woe
To midnight dances? *Pope.*

(1.) * MOCKING-BIRD. *n. ſ.* [*mocking* and *bird.*] An American bird, which imitates the note of other birds.

(2.) Mocking-Bird. See Turdus, N° 5.

* MOCKINGLY. *adv.* [from *mockery.*] In contempt; petulantly; with insult.

* MOCKING-STOCK. *n. ſ.* [*mocking* and *ſtock.*] A but for merriment.

Mocking-Thrush. See Turdus, N° 5.

Mock Lead. See Blinde, and Mineralogy, *Part* II. *Chap.* VII. *Order* X.

Mock Orange. See Philadelphus.

Mock Ore. See Blinde, and Mineralogy, *Part* II. *Chap.* VII. *Order* X.

(1.) Mock-Privet. See Phillyrea.

(2.) * Mock Privet. } *n. ſ.* Plants. *Ainſworth.*
* Mock Willow. }

MOCOCO. See Lemur.

MOCONE, a river of Naples, which runs into the Crate; 4 miles N. of Baſignano.

* MODAL. *adj.* [*modale*, Fr. *modalis*, Latin.] Relating to the form or mode, not the eſſence.—When we ſpeak of the faculties of the ſoul, we aſſert not with the ſchools their real diſtinction from it, but only a *modal* diverſity. *Glanville.*

* MODALITY *n. ſ.* [from *modal.*] Accidental difference; modal accident.—The motions of the mouth by which the voice is diſcriminated, are the natural elements of ſpeech; and the application of them in their ſeveral compoſitions, or words made of them, to ſignify things, or the *modalities* of things is artificial. *Holder.*

MODANE, a town of France, in the dep. of Mont Blanc, late Savoy, and ci-devant county of Maurienne; near ſome copper and iron mines; 15 miles E. of St Jean de Morienne.

MODBURG, an ancient town of Devonſhire, with a market on Thurſday; 14 miles E. of Plymouth, and 208 WSW. of London. It ſent members to Parliament under Edward I.

(1.) * MODE. *n. ſ.* [*mode*, Fr. *modus*, Latin.] 1. External variety; accidental diſcrimination; accident.—A *mode* is that which cannot ſubſiſt in and of itſelf, but is always eſteemed as belonging to, and ſubſiſting by, the help of ſome ſubſtance, which, for that reaſon, is called its ſubject. *Watts.* —Few allow *mode* to be called a being in the ſame perfect ſenſe as a ſubſtance is, and ſome *modes* have evidently more of real entity than others. *Watts.* 2. Gradation; degree.—

What *modes* of ſight betwixt each wide extreme,
The mole's dim curtain, and the linx's beam.
Pope.

3. Manner; method; form; faſhion.

Our Saviour beheld
A table richly ſpread, in regal *mode*,
With diſhes pil'd. *Milton's Par. Reg.*

—The duty itſelf being reſolved upon, the *mode* of doing it may eaſily be found. *Taylor's Guide.* 4. State; quality.—

My death
Changes the *mode*; for what in me was purchas'd,
Falls upon thee in a much fairer ſort. *Shak.*

5. [*Mode*, French.] Faſhion; cuſtom.—There are certain garbs and *modes* of ſpeaking, which vary with the times. *Denham.*—We are to prefer the ble ſings of providence before the ſplendid curioſitie of *mode* and imagination. *L'Eſtrange.*—They wer invited from all parts; and the favour of learnin was the humour and *mode* of the age. *Temple.*—As we ſee on coins the different faces of perſon we ſee too their different habits and dreſſes, ac cording to the *mode* that prevailed. *Addiſon.*—

Tho' wrong the *mode*, comply; more ſenſe i
ſhown
In wearing others follies than your own. *Toun*
If faith itſelf has diff'rent dreſſes worn,
What wonder *modes* in wit ſhould take thei
turn? *Pop*

(2.) Mode, or Mood, in grammar. See tha article, under English Language.

(3.) Mode, in metaphyſics, ſeems properly t denote the manner of a thing's exiſtence: bu Locke, whoſe language in that ſcience is general ly adopted, uſes the word in a ſenſe ſomewha different from its ordinary ſignification. "Suc complex ideas, which, however compounded, contain not in them the ſuppoſition of ſubſiſting by themſelves, but are conſidered as dependencie on, or affections of ſubſtances," he calls *modes.* Of theſe *modes*, there are two ſorts; Firſt, thoſe "which are only variations, or different combinations of the ſame ſimple idea, without the mixture of any other, as *a dozen* or *a ſcore*; which are nothing but the ideas of ſo many diſtinct units added together:" Theſe he calls *ſimple modes.* 2dly, "There are others compounded of ſimple ideas of ſeveral kinds put together to make one complex one; *v g. beauty*, conſiſting of a certain compoſition of colour and figure, cauſing delight in the beholder; *theft*, which being the concealed change of the poſſeſſion of any thing without the conſent of the proprietor, contains, as is viſible, a combination of ſeveral ideas of ſeveral kinds;" and theſe he calls *mixed modes.* See Metaphysics, *Sect.* XI, XII, XVI, XVII.

(4.) Mode, in muſic; a regular diſpoſition of the air and accompaniments relative to certain principal ſounds upon which a piece of muſic is formed, and which are called the *eſſential* [illegible] *of the mode.* There is this difference betw[illegible] mode and the tone, that the latter only [illegible]mines the principal ſound, and indicat[illegible] place which is moſt proper to be occupied [illegible] ſyſtem which ought to conſtitute the b[illegible] the air; whereas the former regulates the th[illegible], and modifies the whole ſcale agreeably to [illegible]damental ſounds. Our *modes* are not, like [illegible] of the ancients, characteriſed by any ſentim[illegible] which they tend to excite, but reſult from our ſyſtem of harmony alone. The ſounds eſſential to the mode are 3, and form together one perfect chord. 1. The tonic or key, which is the fundamental note both of the tone and of the mode; (See Tone and Tonic.) 2. The dominant, which is a fifth from the tonic: See Dominant.) 3. The mediant, which properly conſtitutes the *mode*, and which is a third from the ſame tonic. As this third may be of two kinds, there are of conſequence two different modes. When the mediant forms a greater third with the tonic the m[illegible] is major; when the third is leſſer, it is minor. The major mode is immediately generated by the reſonance of ſounding bodies, which exhibit the third major of the fundamental ſound; but the minor mode is not the product of nature; it is only found by analogy and inverſion. This is equally true upon the ſyſtem of Sig. Tartani as upon that of M. Rameau. This laſt author has explained the origin of this minor mode in different ways, of which his interpreter M. d'Alembert was ſatisfied with none. For this reaſon he has founded this origin on a different principle. (See Music, Art. 28—31.) When the mode is once determined, every note in the ſcale aſſumes a name expreſſive of its relation to the fundamental ſound, and peculiar to the place which it occupies in that particular mode. We ſubjoin the names of all the notes ſignificant of their relative values and places in each particular mode, taking the octave at *ut* as an example of the major mode, and of *la* as an example of the minor.

Major,	*ut*	*re*	*mi*	*fa*	*ſol*	*la*	*ſi*	*ut*
Minor,	*la*	*ſi*	*ut*	*re*	*mi*	*fa*	*ſol*	*la*
	Tonic.	Second Note.	Mediant.	Fourth Note. or Sub-dominant.	Dominant.	Sixth Note. or Sub-dominant.	Seventh Note.	Octave.

When the ſeventh note is only a ſemitone diſtant from the higheſt in the octave, *i. e.* when it forms a third major with the dominant, as *ſi* natural in the major *mode*, or *ſol* ſharp in the minor, that ſeventh ſound is then called a *ſenſible note*, becauſe it diſcovers the tonic and renders the tone apreciable.—Nor does each gradation only aſſume that name which is ſuitable to it; but the nature of each interval is determined according to its relation to the *mode*. The rules eſtabliſhed for this are as follow: 1. The ſecond note muſt form a ſecond major above the tonic, the fourth note and the dominant ſhould form a fourth and fifth exactly true; and this equally in both modes. 2. In the major mode, the mediant or third, the ſixth and the ſeventh from the tonic, ſhould always be major; for by this the mode is characterized. For the ſame reaſon theſe three intervals ought always to be minor in the minor mode; nevertheleſs, as it is neceſſary that the ſenſible note ſhould likewiſe there be perceived, which cannot be effectuated without a falſe relation whilſt the ſixth note ſtill remains minor; this occaſions exceptions, of which, in the courſe of the air or harmony, care muſt be taken. But it is always neceſſary that the cleff, with its tranſpoſitions, ſhould preſerve all the intervals, as determined with relation to the tonic, according to the ſpecies of the *mode*. (See Cleff, in *Rouſſeau's Muſical Dict.*) As all the natural chords in the octave of *ut* give, with relation to that tonic, all the intervals preſcribed for the major *mode*; as the caſe is the ſame with the octave of *la* for the minor mode, the preceding example may ſerve as a formula for the rule of the intervals in each *mode*. This rule has its ſource in the generation of harmony. If you give a perfect major chord to the tonic, to the dominant, and the ſub-dominant, you will have all the ſounds of the diatonic ſcale for the major *mode*: to obtain that of the minor, leaving ſtill its third major to the dominant, give a third minor to the two other chords. Such is the analogy of the mode. There are properly only two *modes*; but there are 12 different ſounds in the octave which may be made fundamental ſounds, and of conſequence form as many keys or tones; and as each of theſe tones are ſuſceptible of the major or minor mode, muſic may be compoſed in 24 modes. Nay, in the manner of writing muſic, there are even 34 paſſable modes; but in practice ten are excluded; which, when thoroughly examined, are nothing but a repetition of the other ten, under relations much more difficult, in which all the chords muſt change their names, and where it muſt coſt any one ſome trouble *to know what he is about*. Such is the major mode upon a note raiſed above its natural pitch by a ſemitone, and the minor mode upon a note depreſſed by a ſemitone. The compoſer does not always continue in the ſame *mode*, nor in the ſame *key*, in which he has begun an air; but, whether to alter the expreſſion or introduce variety, *modes* and *keys* are frequently changed, according to the analogy of harmony; yet always returning to thoſe which have been firſt heard; this is called *modulation*. Thence ariſes a new diviſion of *modes* into ſuch as are *principal* and ſuch as are *relative*; the principal is that in which the piece begins and ends; the relative modes are ſuch as the compoſer interweaves with the principal in the flow of the harmony. (See Modulation.) Others have propoſed a third ſpecies, which they call a *mixed mode*, becauſe it participates the modulation of both the others, or rather becauſe it is compoſed of them; a mixture which they did not reckon an inconveniency, but rather an advantage, as it increaſes the variety, and gives the compoſer a greater latitude both in air and harmony. This new mode, not being found by the analyſis of the three cords like the two former, is not determined, like them, by harmonics eſſential to the mode, but by an entire ſcale which is peculiar to itſelf, as well in riſing as deſcending; ſo that in the two modes above-mentioned, the ſcale is inveſtigated by the chords, and in this mixed mode the chords are inveſtigated by the ſcale. The following notes exhibit the form of this ſcale in ſucceſſion, as well riſing as deſcending; *mi fa ſol la ſi ut re mi.* Of which the eſſential difference is, as to the *melody*, in the poſition of the two ſemitones; of which the firſt is found between the firſt and the ſecond note, and the laſt between the fifth and ſixth; and, with reſpect to the *harmony*, the difference conſiſts in this, that upon its tonic it carries a third minor in the beginning, and major in ending, in the accompaniment of this ſcale, as well in riſing as deſcending, ſuch as it has been given by thoſe who propoſed it, and executed at a ſpiritual concert, May 30. 1751.

(5.) Mode Major. } See Interval, § III. 3;
(6.) Mode Minor. } Mode, § 4; and Modulation, § 3.

(1.) * MODEL. *n. ſ.* [*modele*, Fr. *modulus*, Lat.] 1. A repreſentation in little of ſomething made or done.—

I'll draw the form and *model* of our battle. *Shak.*
—You have the *models* of ſeveral ancient temples,

ples, though the temples and the gods are periſhed. *Addiſon.* 2. A copy to be imitated.—A fault it would be if ſome king ſhould build his manſion-houſe by the *model* of Solomon's palace. *Hooker.*—They cannot ſee ſin in thoſe means they uſe, with intent to reform to their *models* what they call religion. *K. Charles.* 3. A mould; any thing which ſhews or gives the ſhape of that which it incloſes.—

Nothing can we call our own but death;
And that ſmall *model* of the barren earth,
Which ſerves as cover to our bones. *Shak.*

4. Standard; that by which any thing is meaſured.—He that deſpairs, meaſures providence by his own little contracted *model. South.* 5. In *Shakeſpeare* it ſeems to have two unexampled ſenſes. Something repreſentative.—

I have commended to his goodneſs
The *model* of our chaſte loves, his young daughter. *Shak.*

6. Something ſmall and diminitive; for *module*, a ſmall meaſure; which, perhaps, is likewiſe the meaning of the example affixed to the third ſenſe.

England! *model* to thy inward greatneſs,
Like little body with a mighty heart. *Shak.*

(2.) MODEL (§ 1. *def.* 2.) is particularly uſed, in building, for an artificial pattern made in wood, ſtone, plaſter, or other matter, with all its parts and proportions, for the better conducting and executing ſome great work, and to give an idea of the effect it will have in large. In all great buildings, it is much the ſureſt way to make a model in relievo, and not to truſt to a bare deſign or draught. There are alſo models for the building of ſhips, &c. and for extraordinary ſtair-caſes, &c. They alſo uſe models in painting and ſculpture; whence, in the academies, they give the term *model* to a naked man, diſpoſed in ſeveral poſtures, to afford an opportunity to the ſcholars to deſign him in various views and attitudes.

(3.) MODELS, GENERAL METHOD OF MAKING. Models, in imitation of any natural or artificial ſubſtance, are moſt uſually made by means of moulds compoſed of plaſter of Paris. For the purpoſe of making theſe moulds, this kind of plaſter is much more fit than any other ſubſtance, on account of the power it has of abſorbing water, and ſoon condenſing into an hard ſubſtance, even after it has been rendered ſo thin as to be of the conſiſtence of cream. This happens in a ſhorter or longer time as the plaſter is of a better or worſe quality; and its good or bad properties depend very much upon its age, to which, therefore, particular regard ought to be had. It is ſold in the ſhops at very different prices; the fineſt being made uſe of for caſts, and the middling ſort for moulds. It may be very eaſily coloured by almoſt any kind of powder excepting what contains an alkaline ſalt; for this would chemically decompoſe the ſubſtance of it, and render it uſeleſs. A very conſiderable quantity of chalk would alſo render it ſoft and uſeleſs, but lime hardens it to a great degree. The addition of common ſize will likewiſe render it much harder than if mere water is made uſe of. In making either moulds or models, however, the mixture muſt not be made too thick at firſt; for if this is done, and more water added to thin it, the compoſition muſt always prove brittle and of a bad quality. The particular manner of making models, or CASTS, as they are alſo called, depends on the form of the ſubject to be taken. The proceſs is eaſy, where the parts are elevated only in a ſlight degree, or where they form only a right or obtuſe angle with the principal ſurface from which they project; but where the parts project in ſmaller angles, or from curves inclined towards the principal ſurface, the work is more difficult. This obſervation, however, holds good only with regard to hard and inflexible bodies; for ſuch as are ſoft may often be freed from the mould, even though they have the ſhape laſt mentioned. The moulds are to be made of various degrees of thickneſs, according to the ſize of the model to be caſt; and may be from half an inch to an inch, or if very large, an inch and an half. Where a number of models are to be taken from one mould, it is neceſſary to have it of a ſtronger contexture than where only a few are required.

(4.) MODELS OF ANATOMICAL SUBJECTS. It is much more eaſy to make a mould for any ſoft ſubſtance than a rigid one, as in any of the viſcera of the animal body: for the fluidity of the mixture makes it eaſily accommodate itſelf to the projecting parts of the ſubſtance; and as it is neceſſary to inflate theſe ſubſtances, they may be very readily extracted again by letting out the air which diſtended them. When a model is to be taken, the ſurface of the original is firſt to be greaſed, to prevent the plaſter from ſticking to it: but i the ſubſtance itſelf is ſlippery, as is the caſe with the internal parts of the human body, this nee not be done; when neceſſary, it may be lai over with linſeed oil by a painter's bruſh. Th original is then to be laid on a ſmooth table, pre viouſly greaſed or covered with a cloth, to pre vent the plaſter ſticking to it; then ſurroun the original with a frame or ridge of glazier's pu ty, at ſuch a diſtance from it as will admit th plaſter to reſt upon the table on all ſides of th ſubject for about an inch. A ſufficient quantit of plaſter is then to be poured as uniformly a poſſible over the whole ſubſtance, until it b every where covered to ſuch a thickneſs as to giv a proper ſubſtance to the mould, which may var in proportion to the ſize. The whole muſt the remain in this condition till the plaſter has attained its hardneſs; when the frame is taken awa the mould may be inverted, and the ſubject r moved from it; and when the plaſter is thorough dry let it be well ſeaſoned. The moulds muſt ne be prepared for the caſts by greaſing the inſide them with a mixture of olive oil and lard in equ parts, and then filled with fine fluid plaſter, a the plain of the mould formed by its reſting the ſurface of the table covered to a ſufficie thickneſs with coarſe plaſter, to form a ſtro baſis or ſupport for the caſt where the ſupport requiſite, as is particularly the caſe where the th and membranous part of the body are to be r preſented. After the plaſter is poured into t mould, it muſt be ſuffered to ſtand until it has a quired the greateſt degree of hardneſs it will ceive; after which the mould muſt be remove but this will be attended with ſome difficul when the ſhape of the ſubject is unfavourab and in ſome caſes the mould muſt be ſeparated by means of a ſmall mallet and chiſſel. If by theſe inſtruments any parts of the model ſhould be broken off, they may be cemented by making the two ſurfaces to be applied to each other quite wet; then interpoſing betwixt them a little liquid plaſter; and laſtly, the joint ſmoothed after being thoroughly dry. Any ſmall holes that may be made in the mould can be filled up with liquid plaſter, after the ſides of them have been thoroughly wetted, and ſmoothed over with the edge of a knife. In many caſes it is altogether impracticable to prepare a mould of one piece for a whole ſubject; and therefore it muſt be conſidered how this can be done in ſuch a manner as to divide the mould into the feweſt pieces. This may be effected by making every piece cover as much of the pattern as poſſible, without ſurrounding ſuch projecting parts, or running into ſuch hollows as would not admit a ſeparation of the mould. The number of pieces of which the mould is to conſiſt muſt be always determined from the ſhape of the pattern. Thus the mould of the human calculus will require no more than three pieces, but that of an *os femoris* could ſcarce have fewer than 10 or 12. Where any internal pieces are required, they are firſt to be made, and then the outer pieces after the former have become hard. To make a mould upon an hard and dry ſubſtance, we muſt, in the firſt place, rub the ſurface of it ſmoothly over with the mixture of oil and lard above-mentioned. Such hollows as require internal pieces are then to be filled up with fluid plaſter; and while it continues in this ſtate, a wire loop muſt be introduced into it, by which, when hardened, it can be pulled off. The plaſter ſhould be ſomewhat raiſed in a pyramidal form around this wire, and afterwards cut ſmooth with a knife while yet in its ſoft ſtate; preſerving two or three angular ridges from the loop to the outer edge, that it may fix the more ſteadily in the outer piece of the mould to be afterwards made upon it. Let the outer piece then be well greaſed, to prevent the 2d piece from adhering; the loop being incloſed with ſome putty, both to prevent the 2d piece from adhering and to preſerve an hollow place for the cord. To form the 2d or outſide piece, mix a quantity of plaſter, proportioned to the extent of ſurface it is to cover and the intended thickneſs of the mould: when it is juſt beginning to thicken, or aſſumes ſuch a conſiſtence as not to run off very eaſily, ſpread it over the internal pieces as well as the pattern, taking care not to go too far leſt it ſhould not deliver ſafely; and as the plaſter becomes more tenacious, add more upon the pattern until it has become ſufficiently thick, keeping the edges ſquare and ſmooth like the edge of a board. The plaſter ſhould be ſpread equally upon all parts, which is beſt done by a painter's pallet-knife or apothecary's bolus-knife: but the inſtrument ſhould be ſomewhat leſs pliable than it is commonly made. When the outſide piece is hardened, the edges are to be pared ſmooth, and nearly made ſquare with a ſmall pointed knife. Little holes of a conical ſhape are to be made with the point of a knife, about an inch from one another, according to the ſize of the piece. Theſe are deſigned to receive the fluid plaſter in forming the adjacent parts of the mould, and occaſion points correſponding to the hollows; and are intended to preſerve the edges of the different pieces ſteadily in their proper relative ſituations. The 3d piece is then to be formed in a manner ſimilar to the 2d; greaſing the edges of the former plentifully to prevent the pieces from adhering to each other. Thus the pattern is to be wholly incloſed, only leaving a proper orifice for pouring in the plaſter to form the model; ſmall holes being alſo bored in the mould oppoſite to the wire loops fixed in the inſide pieces, through which a cord is to be conveyed from the loop to confine ſuch pieces during the time of caſting. In ſome caſes, however, it is not neceſſary that the mould ſhould totally incloſe the pattern; for inſtance, where a model is to be made of a pedeſtal, or a buſt of any part of the human body. The bottom of ſuch moulds being left open, there is accordingly ample room for pouring in the plaſter. After the mould is completely formed, it is next to be dried either naturally or by a gentle artificial heat, and then ſeaſoned in the following manner:—Having been made thoroughly dry, which, if the mould is large, will require two or three weeks, it is to be bruſhed over plentifully with linſeed oil boiled with ſugar of lead, finely levigated litharge, or oil of vitriol. The inſide and joints of the mould ſhould be particularly well ſupplied with it. If the mould be large, it is needleſs to attend to the outſide: but when the moulds are ſmall, it will be proper to boil them in the oil; by which means their pores are more exactly filled than could otherwiſe be done. After the moulds have undergone this operation, they are again ſet by to dry, when, being greaſed with olive oil and hog's lard, they are fit for uſe. If linſeed oil be uſed for greaſing the moulds, it will in a ſhort time impart a diſagreeable yellow colour to the caſts. The mould being properly prepared and ſeaſoned, nothing more is requiſite to form the model than to pour the fineſt liquid plaſter of Paris into it. After a layer of this, about half an inch thick, has been formed all around the mould, we may uſe the coarſer kind to fill it up entirely, or to give to the model what thickneſs we pleaſe.

(5.) Models of living persons. Beſides the models which are taken from inanimate bodies, it has been frequently attempted to take the exact reſemblance of people while living, by uſing their face as the original of a model, from whence to take a mould; and the operation, however diſagreeable, has been ſubmitted to by perſons of the higheſt ranks in life. A conſiderable difficulty occurs in this, however, by reaſon of the perſon's being apt to ſhrink and diſtort his features when the liquid is poured upon him; neither is he altogether without danger of ſuffocation, unleſs the operator well underſtands his buſineſs. To avoid the former inconvenience, it will be proper to mix the plaſter with warm inſtead of cold water, by which means the perſon will be under no temptation to ſhrink; and to prevent any danger of a fatal accident, the following method is to be practiſed: Having laid the perſon horizontally on his back, the head muſt firſt be raiſed by a pillow to the exact poſition in which it is naturally carried when the body is erect; then the parts to be repreſented muſt be very thinly covered over with fine oil of almonds by a painter's bruſh: the face is then to be firſt covered with fine fluid plaſter, beginning at the upper part of the fore-head, and ſpreading it over the eyes, which are to be kept cloſed, yet not ſo ſtrongly as to cauſe any unnatural wrinkles. Cover then the noſe and ears, plugging firſt up the *meatus and torii* with cotton, and the noſtrils with a ſmall quantity of tow rolled up, of a proper ſize, to exclude the plaſter. During the time that the noſe is thus ſtopped, the perſon is to breathe through the mouth; in this ſtate the fluid plaſter is to be brought down low enough to cover the upper lip, obſerving to leave the rolls of tow projecting out of the plaſter. When the operation is thus far carried on, the plaſter muſt be ſuffered to harden; after which the tow may be withdrawn, and the noſtrils left free and open for breathing. The mouth is then to be cloſed in its natural poſition, and the plaſter brought down to the extremity of the chin. Begin then to cover that part of the breaſt which is to be repreſented, and ſpread the plaſter to the outſides of the arms and upwards, in ſuch a manner as to meet and join that which is previouſly laid on the face: when the whole of the maſs has acquired its due hardneſs, it is to be cautiouſly lifted, without breaking. After the mould is conſtructed, it muſt be ſeaſoned in the manner already directed; and when the mould is caſt, it is to be ſeparated from the model by means of a ſmall mallet and chiſſel. The eyes, which are neceſſarily ſhown cloſed, are to be carved, ſo that the eye-lids may be repreſented in an elevated poſture; the noſtrils hollowed out, and the back part of the head, from which, on account of the hair, no mould can be taken, muſt be finiſhed according to the ſkill of the artiſt. The edges of the model are then to be neatly ſmoothed off, and the buſt fixed on its pedeſtal.

(6.) **Models, topographical.** When models are made of ſuch large objects, that the model itſelf muſt be of conſiderable ſize, it is vain to attempt making it in the way above deſcribed. Such models muſt be conſtructed by the hand with ſome ſoft ſubſtance, as wax, clay, putty, &c. and it being neceſſary to keep all the proportions with mathematical exactneſs, the conſtruction of a ſingle model of this kind muſt be a work of great labour and expence, as well as of time. A beautiful model was made, in wood, of the New Town of Edinburgh, before it was begun to be built. A model was alſo made of a bridge over the Neva, of uncommon ſtrength as well as elegance, (See Neva.) But of all the models which have been undertaken by human induſtry, perhaps the moſt remarkable is that conſtructed by Gen. Pfiffer, to repreſent the mountainous parts of Switzerland. It is compoſed of 142 compartments, of different ſizes and forms, reſpectively numbered, and ſo artfully put together, that they can be ſeparated and replaced with the greateſt eaſe. The model itſelf is 20½ feet long and 12 broad, and formed on a ſcale which repreſents two Engliſh miles and a quarter by an Engliſh foot; comprehending part of the cantons of Zug, Zurich, Schweitz, Underwalden, Lucerne, Berne, and a ſmall part of the mountains of Glarus; in all, an extent of country of 18½ leagues in length and 12 in breadth. The higheſt point of the model, from the level of the centre, which is the lake of Lucerne, is about 10 inches; and as the moſt elevated mountain repreſented therein riſes 1475 toiſes or 9440 feet above the lake of Lucerne, at a groſs calculation, the height of an inch in the model is about 900 feet. The whole is painted of different colours, in ſuch a manner as to repreſent objects as they exiſt in nature; and ſo exactly is this done, that not only the woods of oak, beech, pine, and other trees, are diſtinguiſhed, but even the ſtrata of the ſeveral rocks are marked, each being ſhaped upon the ſpot, and formed of granite, gravel, or ſuch other ſubſtances as compoſe the natural mountain. So minute alſo is the accuracy of the plan, that it compriſes not only all the mountains, lakes, rivers, towns, villages, and foreſts, but every cottage, bridge, torrent, road, and even every path is diſtinctly marked. The principal material, employed in the conſtruction of this extraordinary model, is a mixture of charcoal, lime, clay, a little pitch, with a thin coat of wax; and it is ſo hard that it may be trod upon without any damage. It was begun in 1766, when the general was about 50 years of age, and it employed him till Auguſt 1785; during all which long ſpace of time his taſk was not only moſt laborious but even dangerous. He raiſed the plans with his own hands on the ſpot, took the elevation of mountains, and laid them down in their ſeveral proportions. In the proſecution of this laborious employment he was twice arreſted as a ſpy; and in the popular cantons was frequently forced to work by moon-light, in order to avoid the jealouſy of the peaſants, who imagined that their liberty would be endangered ſhould a plan of their country be taken with ſuch minute exactneſs. Being often obliged to remain on the tops of ſome of the Alps, where no proviſions could be procured, he took along with him a few milk goats, who ſupplied him with nouriſhment. When any part was finiſhed, he ſent for the people reſiding near the ſpot, and deſired them to examine each mountain with accuracy, whether it correſponded, as far as the ſmallneſs of the ſcale would admit, with its natural appearance; and then, by frequently retouching, corrected the deficiencies. Even after the model was finiſhed, he continued his Alpine expeditions with the ſame ardour as ever, and with a degree of vigour that would fatigue a much younger perſon. All his elevations were taken from the level of the lake of Lucerne: which, according to M. Sauſſure, is 1408 feet above the level of the Mediterranean.

* *To* Model. *v. a.* [*modeler*, Fr.] To plan; to ſhape; to mould; to form; to delineate.—

> When they come to *model* heav'n,
> And calculate the ſtars, how they will wield
> The mighty frame. *Milt*

—The government is *modelled* after the ſame manner with that of the Cantons. *Addiſon.*

* MODELLER. *n. ſ.* [from *model.*] Pla
ſchem

ſchemer; contriver.—Our great *modellers* of gardens have their magazines of plants to diſpoſe of. *Spectator*.

MODELLIGO, a town of Ireland, in Waterford, Munſter.

(1.) MODENA, or the Modenese, a ci-devant duchy of Italy, now included in the kingdom of Italy, and forming the greater part of the department of Panaro. It was bounded on the S. by Tuſcany and the republic of Lucca, on the N. by the duchy of Mantua, on the E. by the Bologneſe and the territories of the church, and on the W. by the duchy of Parma; extending in length from S. to N. about 56 Engliſh miles; in breadth between 24 and 40; and yielding plenty of corn, wine and fruits; with mineral waters. In ſome places petroleum is ſkimmed off the ſurface of the water in deep wells made on purpoſe; and in others is found a kind of earth or tophus, which, when pulveriſed, is an excellent remedy againſt poiſons, fevers, dyſenteries, and hypochondriac diſorders. The principal rivers are the Croſtolo, Secchia, and Panaro. It was long governed by dukes of its own, of the family of Eſte; ſome of whom, particularly Azo I. and II. were anceſtors of the illuſtrious houſe of Hanover, (See Azo I. and II.) Azo I. was a Saxon by deſcent, and was founder of the houſe of Eſte, in 1288. His poſterity continued to rule as dukes and counts of Modena, Mirandola, Reggio, &c. down to Francis II; whoſe grandſon Francis Mary, taking part with Spain, after the death of Charles VI. loſt his dominions, but had them reſtored at the treaty of Aix la Chapelle. His ſon, Hercules III. ſucceeded him, in 1780; but upon the approach of the French under Bonaparte, in May 1796, the duke fled with a large ſum of money to Venice. An armiſtice, however, being entered into, the Duke agreed to pay ten millions of livres in caſh and proviſions; beſides ſending ſome pictures and antiquities to the National Muſeum. But in Oct. 1796, upon the erection of the Cispadane Republic, this country formed a part of it, and in Oct. 1797 it joined with the other democratic ſtates in forming the Cisalpine Republic. All theſe ſtates, however, are now ſwallowed up in the all-devouring vortex of Bonaparte's ambition; and after bearing for a little time the name of the Italian Republic, now conſtitute a part of that overgrown empire of France and Italy; which has not been paralleled in power, riches, and extent of territory, in Europe, ſince the days of Charlemagne.

(2.) Modena, a diſtrict of the Italian republic, in the department of Panaro, comprehending the late duchy, (N° 1.) or Modena Proper. By the cenſus taken on the 13th May 1801, it contained 150,944 citizens. Modena, (N° 3.) is the capital.

(3.) Modena, an ancient city of Italy, capital of the dept. of Panaro, as well as of the diſtrict and late duchy of Modena. It was anciently named Mutina. See that article. It ſtands 28 miles E. of Parma, 44 almoſt S. of Mantua, and 20 W. of Bologna. It is a pretty large and populous, but not a handſome city. It is much celebrated by Roman authors for its grandeur and opulence; but was a great ſufferer by the ſiege it underwent during the troubles of the triumvirate. It was long the uſual reſidence of the dukes; and biſhop's ſee. Keyſler ſays, that when Decimus Brutus was beſieged here by Mark Antony, Hirtius the conſul made uſe of carrier pigeons; and that pigeons are ſtill trained up at Modena to carry letters. This city hath given birth to ſeveral celebrated perſons, particularly Tasso, Correggio, Sigonius, Vignola, and Montecuculi. See theſe articles. The late ducal palace is a very noble edifice, in which, among the other fine pictures, the birth of Chriſt by Correggio, called *la Notte Felice*, is much celebrated. The only manufacture for which this city is noted is that of maſks, of which great numbers are exported. The churches of the Jeſuits, the Theatines, and St Dominic, are fine buildings. The city is fortified, and on its S. ſide ſtands the citadel; but it has been often taken, particularly by the K. of Sardinia, in 1742; and it made no reſiſtance againſt the French, when they entered it on the 20th June, 1796. The number of citizens is eſtimated by Dr Brookes and J. Walker at 40,000 ſouls; but Dr Oppenheim makes it only 20,000. It has many fountains, and there are piazzas thro' the whole city. It lies 22 miles NW. of Bologna. 30 S. of Mantua, 60 N. by W. of Florence, and 80 SW. of Venice. Lon. 11. 18. E. Lat. 44. 39. N.

(1.) MODENESE, the people of Modena.

(2.) Modenese. See Modena, N° 1.

* MODERATE. *adj.* [*moderatus*, Lat. *modere*, French. 1. Temperate; not exceſſive.—Sound ſleep cometh of *moderate* eating. *Ecclus.* 2. Not hot of temper.—A number of *moderate* members managed with ſo much art as to obtain a majority in a thin houſe. *Swift.*—

Fix'd to one part, but *mod'rate* to the reſt. *Pope.*

3. Not luxurious; not expenſive.—

There's not ſo much left as to furniſh out
A *moderate* table. *Shak.*

4. Not extreme in opinion; not ſanguine in a tenet.—Theſe are tenets which the *moderatiſt* of the Romaniſts will not venture to affirm. *Smalridge.* 5. Placed between extremes; holding the mean. —Conſider the trial that hath been thus long had of both kinds of reformation; as well this *moderate* kind, which the church of England hath taken, as that other more extreme and rigorous. *Hooker.* 6. Of the middle rate.—

More *moderate* gifts might have prolong'd his date,
Too early fitted for a better ſtate. *Dryden.*

* *To* Moderate. *v. a.* [*moderor*, Lat. *moderer*, French.] 1. To regulate; to reſtrain; to ſtill; to pacify; to quiet; to repreſs.—

With equal meaſure ſhe did *moderate*
The ſtrong extremities of their rage. *Spenſer.*

2. To make temperate; to qualify.—

Frequent gales from the wide ocean riſe
To fan your air, and *moderate* your ſkies.
Blackmore.

—By its aſtringent quality it *moderates* the relaxing quality of warm water. *Arbuthnot.*

* MODERATELY. *adv.* [from *moderate.*] 1. Temperately; mildly. 2. In a middle degree.—

Each nymph but *moderately* fair,
Commands with no leſs rigor here. *Waller.*

—Blood in a healthy ſtate, when let out, its red part ſhould congeal ſtrongly and ſoon, in a maſs *moderately* tough, and ſwim in the ſerum, *Arbuth.*

* MODERATENESS. *n. ſ.* [from *moderate.*] State of being moderate; temperateneſs. *Moderateneſs* is commonly uſed of things and *moderation* of perſons.

(1.) * MODERATION. *n. ſ.* [*moderatio*, Lat.] 1. Forbearance of extremity; the contrary temper to party violence; ſtate of keeping a due mean betwixt extremes.—Was it the purpoſe of theſe churches, which aboliſhed all popiſh ceremonies, to come back again to the middle point of evenneſs and *moderation? Hooker.*—A zeal in things pertaining to God, according to knowledge, and yet duly tempered with candour and prudence, is the true notion of that much talked of, much miſunderſtood virtue, *moderation. Atterbury.*—

In *moderation* placing all my glory,
While tories call me whig, and whigs a tory. *Pope.*

2. Calmneſs of mind; equanimity. [*moderation*, French.]

Equally inur'd
By *moderation* either ſtate to bear,
Proſperous, or adverſe. *Milton.*

3. Frugality in expenſe. *Ainſw.*

(2.) MODERATION, in ethics, is a virtue conſiſting in the proper government of our appetites, paſſions, and purſuits, with reſpect to honours, riches, and pleaſures; and in this ſenſe it is ſynonymous with TEMPERANCE: it is alſo often uſed to denote CANDOUR.

(1.) * MODERATOR. *n. ſ.* [*moderator*, Latin; *moderateur*, French.] 1. The perſon or thing that calms or reſtrains.—Angling was, after tedious ſtudy, a calmer of unquiet thoughts, a *moderator* of paſſions. *Walton.* 2. One who preſides in a diſputation, to reſtrain the contending parties from indecency, and confine them to the queſtion.—Sometimes the *moderator* is more troubleſome than the actor. *Bacon.*—How does Philopolis ſeaſonably commit the opponent with the reſpondent, like a long-practiſed *moderator? More.*—The firſt perſon who ſpeaks when the court is ſet, opens the caſe to judge, chairman, or *moderator* of the aſſembly. *Watts.*

(2.) MODERATOR, in eccleſiaſtical polity, is the title given the preſident of the annual aſſembly of the church of Scotland; it is alſo applied to the preſidents of preſbyteries and synods. As alſo the name of two public officers in the univerſity of Cambridge, who alternately ſuperintend the whole exerciſes for degrees in arts; and who, together with the proctors, examine the candidates for degrees.

(1.) * MODERN. *adj.* [*moderne*, French; from *modernus*, low Latin; ſuppoſed a caſual corruption of *hodiernus*. Vel potius ab adverbio *modò*. modernus, ut a *die* diurnus. *Ainſ.*] 1. Late; recent; not ancient; not antique.—Some of the ancient, and likewiſe divers of the *modern* writers, that have laboured in natural magic, have noted a ſympathy between the ſun and certain herbs. *Bacon.*—

The glorious parallels then downward bring
To *modern* wonders, and to Britain's king. *Prior.*

2. In *Shakeſpeare*, vulgar; mean; common. Trifles ſuch as we preſent *modern* friends withal. *Shak.*

The juſtice
With eyes ſevere and beard of formal cut,
Full of wiſe ſaws and *modern* inſtances. *Shak.*

—We have our philoſophical perſons to make *modern* and familiar things ſupernatural and cauſeleſs. *Shak.*—

(2.) MODERN, a town of Hungary, 14 miles NNE. of Preſburg.

(3.) MODERN AUTHORS, according to Naude, are all thoſe who have written ſince Boethius. The modern philoſophy commences with Galileo; the modern aſtronomy with Copernicus.

(4.) * MODERNS. *n. ſ.* Thoſe who have lived lately, oppoſed to the ancients.—Theſe are *moderns*, who with a ſlight variation, adopt the opinion of Plato. *Boyle.*—

Some by old words to fame have made pretence;
Ancients in phraſe, mere *moderns* in their ſenſe
Pope

* *To* MODERNISE. *v. a.* [from *modern.*] To adapt ancient compoſitions to modern perſons or things; to change ancient to modern language.

* MODERNISM *n. ſ.* [from *modern.*] Deviation from the ancient claſſical manner. A word invented by *Swift.*—Scribblers ſend us over their traſh in proſe and verſe, with abominable curtailings and quaint *moderniſms. Swift.*

* MODERNNESS. *n. ſ.* [from *modern.*] Novelty.

MODERWITZ, a town of Upper Saxony.

(1.) * MODEST. *adj.* [*modeſte*, French; *modeſtus*, Latin 1. Not arrogant; not preſumptuous not boaſtful; baſhful.—

Of boaſting more than of a tomb afraid;
A ſoldier ſhould be *modeſt* as a maid. *Young*

2. Not impudent; not forward.—

Reſolve me with all *modeſt* haſte, which way
Thou might'ſt deſerve, or they impoſe thi
uſage. *Shak*

Her face, as in a nymph, diſplay'd
A fair fierce boy, or in a boy betray'd
The bluſhing beauties of a *modeſt* maid. *Dr*

3. Not looſe; not unchaſte.—Mrs Ford, the honeſt woman, the *modeſt* wife. *Shak.* 4. Not exceſſive; not extreme; moderate; within a mean —There appears much joy in him, even ſo muc that joy could not ſhew itſelf *modeſt* enough without a badge of bitterneſs. *Shak.*—During the la four years, by a *modeſt* computation, there hav been brought into Breſt above ſix millions ſterlin in bullion.

* MODESTLY. *adv.* [from *modeſt.*] 1. Not arrogantly; not preſumptuouſly.—I may *modeſ* conclude, that whatever errors there may be i this play, there are not thoſe which have be objected to it. *Dryden.*—

Firſt he *modeſtly* conjectures,
His pupil might be tir'd with lectures. *S*
Tho' learn'd, well-bred; and tho' well-bre
ſincere,
Modeſtly bold, and humanely ſevere. *Pe*

2. Not impudently; not forwardly; with ſpect.—

I, your glaſs,
Will *modeſtly* diſcover to yourſelf

T

That of yourſelf, which yet you know not of.
Shak.

3. Not looſely; not lewdly; with decency. 4. Not exceſſively; with moderation.

(1.) * MODESTY. *n. ſ.* [*modeſtie*, Fr. *modeſtas*, Lat.] 1. Not arrogance; not preſumptuouſneſs.—They cannot, with *modeſty*, think to have found out abſolutely the beſt which the wit of men may deviſe. *Hooker.*—2. Not impudence; not forwardneſs: as, *his petition was urged with* modeſty. 3. Moderation; decency.—

A lord will hear you play;
But I am doubtful of your *modeſties*,
Leſt over-eying of his odd behaviour,
You break into ſome merry paſſion. *Shak.*

4. Chaſtity; purity of manners.—

Would you not ſwear,
All you that ſee her, that ſhe were a maid,
By theſe exterior ſhews? But ſhe is more,
Her bluſh is guiltineſs, not *modeſty*. *Shak.*

—Of the general character of women, which is *modeſty*, he has taken a moſt becoming care; for his amorous expreſſions go no farther than virtue may allow. *Dryden.*—Talk not to a lady in a way that *modeſty* will not permit her to anſwer. *Clariſſa.*

(2.) Modesty, in ethics, (§ 1. *def.* 4.) as particularly applied to women, is defined by the authors of the *Encyclopedie Methodique*, a natural, chary, and honeſt ſhame; a ſecret fear; a feeling on account of what may be accompanied with diſgrace. Women who poſſeſs only the remains of a ſuſpicious modeſty, make but feeble efforts to reſiſt: thoſe who have obliterated every trace of modeſty from their countenance, ſoon extinguiſh it completely in their ſoul, and throw aſide even the veil of decency. She, on the contrary, who truly poſſeſſes modeſty, paſſes over in ſilence attempts againſt her honour, and forbears ſpeaking of thoſe from whom ſhe has received an outrage, when, in doing ſo, ſhe muſt reveal actions or expreſſions that might give offence to virtue. The idea of modeſty is not a chimera, a popular prejudice, or an illuſion ariſing from laws and education. The unanimous conſent of nations has annexed contempt to female incontinence. To reſiſt and to attack are laws of Nature's appointment; and while ſhe beſtows deſires on both parties, they are in the one accompanied with boldneſs, in the other with modeſty and delicacy. What arms more gentle than *Modeſty* could be put into the hands of that ſex which is deſigned to make reſiſtance! If it were the cuſtom for both ſexes to make and receive advances indiſcriminately, the moſt amiable of all feelings would ſcarcely warm the human breaſt. That obſtacle which ſeems to remove this object to a diſtance, in fact brings it nearer. Modeſty kindles that flame which it ſeems to ſuppreſs: its fears, its evaſions, its caution, its timid avowals, its pleaſing and affecting fineſſes, ſpeak more plainly what it wiſhes to conceal, than paſſion can do without it: it is Modesty, in ſhort, which enhances the value of love, and even mitigates the pain of refuſal. Such, however, is the influence of climate or cuſtom in ſome countries, that the women at Patana, at Bantam, and in ſome ſmall kingdoms on the coaſt of Guinea, ſeem to have extirpated modeſty from their breaſts. When they meet with a man, they lay hold of him, and threaten to inform their huſbands if he refuſes their favours. It is fortunate to live in a temperate climate like ours, where that ſex, which poſſeſſes the moſt powerful charms, exerts them to embelliſh ſociety; and where modeſt women, while they reſerve themſelves for the pleaſure of one, contribute to the refinement of all.

* Modesty-piece. *n. ſ.* A narrow lace which runs along the upper part of the ſtays before, being a part of the tucker, is called the *modeſty-piece*. *Addiſon's Guardian.*

MODI, an iſland of Turkey in the Mediterranean. Lon. 41. 30. E. Ferro. Lat. 37. 27. N.

MODICA, a town of Sicily, in Val di Noto.

* MODICUM. *n. ſ.* [Lat.] Small portion; pittance.—What *modicums* of wit he utters: his evaſions have ears thus long. *Shak. Troil. and Creſſ.*—

Though hard their fate,
A cruſe of water, and an ear of corn,
Yet ſtill they grudg'd that *modicum*. *Dryden.*

* MODIFIABLE. *adj.* [from *modify*.] That may be diverſified by accidental differences.—It appears to be more difficult to conceive a diſtinct, viſible image, in the uniform, invariable, eſſence of God, than in variouſly *modifiable* matter: but the manner how I ſee either ſtill eſcapes my comprehenſion. *Locke.*

* MODIFICABLE. *adj.* [from *modify*.] Diverſifiable by various modes.

(1.) * MODIFICATION. *n. ſ.* [*modification*, Fr.] The act of modifying any thing, or giving it new accidental differences of external qualities or mode.—The chief of all ſigns is the human voice, and the ſeveral *modifications* thereof by the organs of ſpeech, and letters of the alphabet, formed by the motions of the mouth. *Holder.*—The phænomena of colours in refracted or reflected light, are not cauſed by new *modifications* of the light variouſly impreſſed. *Newton's Opticks.*—If theſe powers of cogitation, volition, and ſenſation, are neither inherent in matter as ſuch, nor acquirable to matter by any motion and *modification* of it, it neceſſarily follows, that they proceed from ſome cogitative ſubſtance, ſome incorporeal inhabitant within us, which we call ſpirit. *Bentley.*

(2.) Modification, decree of, in Scots law, a decree aſcertaining the extent of a miniſter's ſtipend, without proportioning it among the perſons liable in payment.

(1.) * *To* MODIFY. *v. a.* [*modifier*, Fr.] 1. To change the external qualities or accidents of any thing; to ſhape.—Yet there is that property in all letters, of aptneſs to be conjoined in ſyllables and words through the voluble motions of the organs, that they *modify* and diſcriminate the voice without appearing to diſcontinue it. *Holder.*—The middle parts of the broad beam of white light which fell upon the paper, did, without any confine of ſhadow to *modify* it, become coloured all over with one uniform colour, the colour being always the ſame in the middle of the paper as at the edges. *Newton.* 2. To ſoften; to moderate.

He *modifies* his firſt ſevere decree. *Dryden.*

(2.) * *To* Modify. *v. n.* To extenuate.—After all this deſcanting and *modifying* upon the matter, there is hazard on the yielding ſide. *L'Eſtrange.*

(1.) * MODILLON. *n. ſ.* [Fr. *modiolus*, Latin.] *Modillons*, in architecture, are little brackets which are often ſet under the Corinthian and compoſite orders, and ſerve to ſupport the projecture of the larmier or drip: this part muſt be diſtinguiſhed from the great model, which is the diameter of the pillar; for, as the proportion of an edifice in general depends on the diameter of the pillar, ſo the ſize and number of the *modillons*, as alſo the interval between them, ought to have due relation to the whole fabrick. *Harris.*—The *modillons* or dentelli make a noble ſhow by their graceful projections. *Spectator.*

(2.) Modillons, or Modillions. See Architecture, *Index.*

MODILOWA, a town of Poland, in Volhynia; 36 miles NE. of Zytomiers.

* MODISH. *adj.* [from *mode.*] Faſhionable; formed according to the reigning cuſtom.—

But you, perhaps, expect a *modiſh* feaſt,
With am'rous ſongs, and wanton dances grac'd.
Dryden.

—Hypocriſy, at the faſhionable end of the town, is very different from hypocriſy in the city; the *modiſh* hypocrite endeavours to appear more vitious than he really is, the other kind of hypocrite more virtuous. *Spectator.*

* MODISHLY. *adv.* [from *modiſh.*] Faſhionably.—Young children ſhould not be much perplexed about putting off their hats, and making legs *modiſhly*. *Locke.*

* MODISHNESS. *n. ſ.* [from *modiſh.*] Affectation of the faſhion.

MODIUM, a town of Norway, in Agerhuus.

MODIUS, a Roman dry meaſure for all ſorts of grain, containing 32 heminæ, or 16 ſextarii, or one third of the amphora, amounting to an Engliſh peck. See Measure, N° VII, § 4, iii.

MODON, an ancient and handſome town of Turkey, on the SW. coaſt of the Morea, with a large and ſafe harbour. It has been often taken and retaken by the Venetians and Turks, and ſuffered ſome ſevere ſieges. It is ſeated on a promontory, in the ſea of Sapienza; 20 miles W. of Coron, and 42 WSW. of Miſitra. Lon. 21. 35. E. Lat. 36. 58. N.

MODREVIUS, Andrew Frichius, ſecretary to Sigiſmund Auguſtus king of Poland, acquired conſiderable reputation by his learning and works. He broke off from the Romiſh church, favoured the Lutherans and Anti-trinitarians, and took great pains to unite all Chriſtian ſocieties under the ſame communion. Grotius has placed him among the reconcilers of the different ſchemes of religion. His principal work is entitled, *De Republica Emendanda;* printed in 1554.

MODRSEW, a town of Poland, in Cracow.

* *To* MODULATE. *v. a.* [*modulor*, Latin.] To form ſound to a certain key, or to certain notes. —The noſe, lips, teeth, palate, jaw, tongue, weaſan, lungs, muſcles of the cheſt, diaphragm, and muſcles of the belly, all ſerve to make or *modulate* the ſound. *Grew.*—Could any perſon ſo *modulate* her voice as to deceive ſo many. *Broome.*

Echo propagates around
Each charm of *modulated* ſound. *Anon.*

(1.) * MODULATION. *n. ſ.* [from *modulate; modulation*, Fr.] 1. The act of forming any thing to certain proportion.—The number of the ſimple original minerals have not been rightly fixed the matter of two or more kinds being mixed together, and by the different proportion and *modulation* of that matter variouſly diverſified, hav been reputed all different kinds. *Woodward.*—Th ſpeech, as it is a ſound reſulting from the *modulation* of the air, has moſt affinity to the ſpirit. *Gov of the Tongue.* 2. Sound modulated; harmony melody.—

Innumerous ſongſters, in the freſhening ſhade
Their *modulations* mix, mellifluous. *Thomſon*

(2.) Modulation, in reading. See Reading

(3.) Modulation, in muſic, is ſuſceptible o ſeveral different ſignifications. It frequently mean no more than an air, or a number of muſica ſounds properly connected and arranged. Thu it anſwers to what Mr Malcolm underſtands by the word *tune*, when he does not expreſsly treat concerning the tuning of inſtruments. Thus likewiſe it expreſſes the French word *chant;* for which reaſon, in Music, the one word is often expreſſed by the other. But the preciſe and technical acceptation to which it ought to be confined, is the art of compoſing melody or harmony agreeably to the laws preſcribed by any particular key, that of changing the key, or of regularly and legitimately paſſing from one key to another.

(4.) Modulation, M. Rousseau's remarks on. Modulation (ſays he) is properly the manner of aſcertaining and managing the modes; but at this time the word moſt frequently ſignifies the art of conducting the harmony and the air ſucceſſively through ſeveral modes, in a manner agreeable to the ear, and conformed to rules. If the different modes be produced by harmony, thence likewiſe muſt ſpring the laws of modulation. Theſe are ſimple in conception, but difficult in practice. To modulate properly in the ſame tone, it is neceſſary, 1. To run through all the ſounds of it in an agreeable air, frequently repeating the ſounds moſt eſſential to it, and dwelling upon theſe with the moſt remarkable emphaſis; that is to ſay, that the chord containing the ſenſible notes, and that of the tonic, ſhould frequently be heard in it, but under different appearances, and obtained by different procedures to prevent monotony. 2. That repoſes or cadences ſhould only be eſtabliſhed upon theſe two chords: the greateſt liberty, however, which ought to be taken with the rule is, that a cadence or repoſe may be eſtabliſhed on the chord of the ſubdominant. 3. In ſhort, that none of the ſounds of the mode ought ever to be altered; for without quitting it we cannot introduce a ſharp or a flat which does not belong to it, nor abſtract any one which in reality does belong to it. But paſſing from one mode to another, we muſt conſult analogy, we muſt conſider the relations which a key bears to the other notes in the ſeries, and to the number of ſounds common to both the modes, that from whence we paſs, and that into which we enter. If we paſs from a mode major, whether we conſider the 5th from the key as having the moſt ſimple relation with it except that of the octave, or whether we conſider it as the firſt ſound which enters into the harmonics of the ſame key, we ſhall always find, that this fifth, which is the dominant of the mode, is the chord upon which we may eſtabliſh the modulation moſt analogous to that of the principal key. This dominant, which conſtituted one of the harmonics of the firſt key, makes alſo one of its own peculiar key, of which it is the fundamental ſound. There is then a connection between theſe two chords. Beſides, that ſame dominant carrying, as well as the tonic, a perfect chord major upon the principle of reſonance, theſe two chords are only different one from the other by the diſſonance, which, paſſing from the key to the dominant, is the 6th ſuperadded, and when reaſcending from the dominant to the key is the 7th. Now theſe two chords, thus diſtinguiſhed by the diſſonance which is ſuitable to each, by the ſounds which compoſe them when ranged in order, form preciſely the octave, or the diatonic ſcale, which we call a GAMMUT, which determines the mode. This ſeries of the key, altered only by a ſharp, forms the ſcale belonging to the mode of the dominant; which ſhows how ſtriking the analogy is between theſe two tones, and gives the eaſieſt opportunity of paſſing from one to the other by means of one ſingle alteration alone. The mode then of the dominant is the firſt which preſents itſelf after that of the key in the order of modulations. The ſame ſimplicity of relations which we find between a tonic and its dominant, is likewiſe found between the ſame tonic and its ſub-dominant: for that fifth, in aſcending, which is formed by the dominant with the tonic, is likewiſe formed by the ſub-dominant in deſcending: but that ſub-dominant does not form a fifth with the tonic, except by inverſion; it is directly a 4th, if we take that tonic below, as it ought to be; and which fixes the degree of their relations: for in this ſenſe the fourth, whoſe ratio is as 3 to 4, immediately follows the 5th, whoſe ratio is as 2 to 3. So that, if that ſub dominant does not enter into the chord of the tonic, in return the tonic enters into its perfect chord. For let *ut mi ſol* be the chord of the tonic, that of the ſub-dominant ſhall be *fa la ut*: thus it is the *ut* which here forms the connection, and the two other ſounds of this new chord, are exactly the two diſſonances of the preceding. Beſides, we need not alter more ſounds for this new mode than for that of the dominant; they are both in the one and the other quite the ſame chords of the principal mode, except one. Add a flat to the ſenſible note *ſi* or B, and all the notes in the mode of *ut* or C will ſerve for that of *fa* or F. The mode of the ſub-dominant then is ſcarcely leſs analogous to the principal mode than that of the dominant. After having made uſe of the firſt modulation, in order to paſs from a principal mode *ut* or C, to that of the dominant *ſol* or G, we are obliged to make uſe of the ſecond to return to the principal mode: for if *ſol* or G be the dominant in the mode of *ut* or C, *ut* is the ſub-dominant in the mode of *ſol*: thus one of theſe modulations is no leſs neceſſary than the other. The third ſound which enters into the chord of the tonic is that of third formed by its mediant; and after the preceding, it is likewiſe the moſt ſimple of relations $\frac{2\,1\,4}{1\,4\,5}$. Here then is a new modulation which preſents itſelf, and which is ſo much the more analogous, becauſe two of the ſounds of the principal tonic enter likewiſe into the minor chord of its mediant: for the former chord being *ut mi ſol*, the latter muſt be *mi ſol ſi*, where it may be perceived that *mi* and *ſol* are common. But what renders this modulation a little more remote, is the number of ſounds which are neceſſary to be altered, even for the minor mode, which is moſt ſuitable to this *mi*. In the article MUSIC (234) will be found a table for all the modes; and Rouſſeau, in his Muſical Dictionary, has given the formula of a ſcale both for the major and minor; now, by applying this formula to the MINOR MODE, we find nothing in reality, but the 4th ſound *fa* heightened by a ſharp in aſcending; but in riſing, we find two others which are altered, viz. the principal tonic *ut*, and its ſecond *re*, which here becomes a ſenſible note: it is certain that the alteration of ſo many ſounds, and particularly of the tonic, muſt remove the mode and weaken the analogy. If we ſhould invert the third as we have inverted the fifth, and take that third below the tonic on the ſixth note *la*, which ought here to be called a *ſub-mediant*, or the *mediant below*, we ſhall form upon this note *la* a modulation more analogous to the principal tone than that of *mi*; for as the perfect chord of this ſub-mediant is *la ut mi*, there once more we find, as in that of the mediant, two of the ſounds which enter into the chord of the tonic, viz. *ut* and *mi*: and moreover, ſince the ſcale of this new key is compoſed, at leaſt in deſcending, of the ſame ſounds with that of the principal key; and ſince it has only two ſounds altered in aſcending, *i. e.* one fewer than the ſeries of the mediant; it follows, that the modulation of this 6th note is preferable to that of the mediant; and by ſo much the more, that there the principal tonic forms one of the ſounds eſſential to the mode; which is more proper for approximating the idea of the modulation. The *mi* may afterwards follow. Here then are 4 ſounds, *mi fa ſol la*, upon each of which we may modulate in paſſing from the major mode of *ut*. *Re* and *ſi* remain, which are the two harmonics of the dominant. This laſt, as being a ſenſible note, cannot become a tonic by any proper modulation, at leaſt it cannot immediately become one: this would be an abrupt application of ideas too much oppoſed to the ſame ſounds, and would likewiſe be to give it a harmony too remote from the principal ſound. As to the 2d note *re*, we may likewiſe, by favour of a conſonant procedure in the fundamental baſe, modulate upon it in a third minor; but this muſt be only continued for an inſtant, that the audience may not have time to forget the modulation of *ut*, which is itſelf altered in that place; otherwiſe, inſtead of returning immediately to *ut*, we muſt paſs through intermediate modes, where we muſt run great hazard of deviation. By following the ſame analogies, we may modulate in the following order, to make our exit from a minor mode; firſt upon the mediant, afterwards the dominant, next the ſub-dominant, then the ſub-mediant, or ſixth note. The mode of each of theſe acceſſory keys is determined by its mediant taken from the principal ſound. For inſtance, iſſuing from the major mode of *ut*, to modulate upon its mediant, we render the

Turks. To this prince is attributed many of thoſe inventions which barbarous nations commonly aſcribe to their firſt ſovereigns. He was ſucceeded by Taunak; in whoſe reign the whole poſterity of Turk were divided into 4 large tribes, called the *ordas* of Erlat, Gialiar, Kaugin, Berlas or Perlas; of which laſt came the famous *Timur Beg*, or TAMERLANE. From this time to that of Alanza khan, we meet with nothing remarkable. In his reign the Turks, being immerſed in all kinds of luxury, univerſally apoſtatized into idolatry. Having two ſons, Tartar and Mogul, he divided his dominions among them, and thus gave riſe to the two empires of the Tartars and Moguls. The two nations had not long exiſted before they began to make war upon each other; and after long contention, Il Khan, emperor of the Moguls, was totally overthrown by Siuntz Khan, emperor of the Tartars; and ſo great was the defeat, that the Mogul nation was almoſt exterminated. Only two of Il Khan's family ſurvived. Theſe were Kajan his youngeſt ſon, and Nagos his nephew, who were both of an age, and had both been married the ſame year. Theſe two princes, with their wives, had been taken priſoners by Siuntz Khan, but made their eſcape to their own country. Here they ſeized upon all the cattle which had not been carried off by the Tartars; then ſtripping ſome of the ſlain, they took their clothes, and retired into the mountains. They paſſed ſeveral mountains without much difficulty; but at laſt advanced to the foot of one exceedingly high, which had no way over it but a very ſmall path made by certain animals, called in the Tartar language *archara*. This path they made uſe of, though it was ſo ſtrait, that only one could paſs at a time, and he was in the moſt imminent danger of breaking his neck at the leaſt falſe ſtep. Having aſcended the mountain on one ſide by this path, they deſcended by the ſame on the other ſide; and were agreeably ſurpriſed to find themſelves in a moſt delightful track, interſperſed with rivulets and meadows, abounding with a vaſt variety of fruits, and incloſed on all ſides by inacceſſible mountains, ſo as to ſhelter them from all future purſuits of the Tartars. Here they lived ſome time, and gave this beautiful country the name of *Irgana-kon*, from its ſituation; *Irgana* ſignifying, in the old language of the Moguls, *a valley*, and *Kon*, *a ſteep height*. In proceſs of time theſe two families very much increaſed. Kajan, whoſe poſterity was the moſt numerous, called his deſcendants *Kajath*: but the people ſpringing from Nagos were divided into 2 tribes; *Nagoſler* and *Durlagan*. Theſe two Mogul princes and their deſcendants lived in this place for more than 400 years; but the latter then finding it too narrow for them, meditated a return to the country from whence their anceſtors had been expelled. For ſome time, however, they found this impracticable, as the path that conducted their anceſtors had long been deſtroyed. At laſt they diſcovered that one part of the high mountain above mentioned was not very thick in a certain place; and that it conſiſted entirely of iron ore. To this, having firſt ſet fire to a layer of wood, and another of charcoal, laid along the foot of the mountain, they applied 70 large bellows, and at laſt melted the mountain in ſuch a manner, that an opening was made, large enough for a loaded camel to paſs; and through this paſſage they all marched out.

(3.) **MOGULS, GENERAL HISTORY OF THE, TILL THE TIME OF JENGHIZ KHAN.** The Moguls having thus iſſued as it were from a new world, overthrew the Tartars in their turn; and continued to be a very conſiderable nation, till the time of their great hero Temujin, afterwards called *Jenghiz Khan*, whom they extol in the moſt extravagant manner. It is difficult, however, to ſay how far their dominions extended at this time. It ſeems certain, that great part of the vaſt region now called *Tartary* was then in a ſtate of conſiderable civilization, and extremely populous, as mention is made of many cities which the Moguls deſtroyed; and the incredible multitudes whom they ſlaughtered ſhow the populouſneſs of the country. On the E. the country of the Moguls and Tartars had the great deſert which divides Tartary from China; on the W. it had the empire of Karazm, founded by Mahmud Gazni; and on the S. were the countries now named *Indoſtan*, *Siam*, *Pegu*, *Tonquin*, and *Cochin-China*. Thus it comprehended the E. part of modern Tartary, and all Siberia. The whole region was divided among a great number of *Aymacks*, or tribes; who had each one or more khans, according as it was more or leſs numerous, or divided into branches. Among theſe, that of the *Karaites* was the moſt powerful; their prince aſſumed the title of *Grand Khan*, and the Moguls were tributary to him; but, according to the Chineſe hiſtorians, both were tributary to the emperor of Kitay or Katay. China was divided into two parts: the 9 ſouthern provinces were then in the hands of the Chineſe emperors of the Song dynaſty, who kept their court at Hang-chew, the capital of the province of Che-kyang (ſee CHINA, § 8.); the 5 N. provinces, excepting part of Shenſi, were poſſeſſed by the Kin, a people of Eaſtern Tartary, from whom are deſcended the Manchew Tartars, at preſent maſters of China. This vaſt dominion was named *Kitay*, and was divided into two parts: that which belonged to China was properly called *Kitay*; and the part which belonged to Tartary *Karakitay*, in which ſome include the territories of the Moguls, Karaites, and other tribes, which are the ſubject of the preſent hiſtory. The W. part of the empire of Kitay was poſſeſſed by a Turkiſh prince, who had lately founded a new kingdom there, called *Hya*; whoſe capital was Hya-chew, now Ninghya in Shenſi, whence the kingdom took its name. On the W. of Hya lay Tangut; a country of great extent, and formerly very powerful; but reduced to a low ſtate, and divided among many princes; ſome of whom were ſubject to the emperor of Hya, and others to the emperor of China. All Tartary to the W. as far as the Caſpian ſea, with the greater part of Little Bukharia, which then paſſed under the general name of *Turkeſtan*, was ſubject to Ghurkhan, Khurkhan, or Kavar Khan; to whom even the Gazni monarchs were tributary. This Ghurkhan had been prince of the W. Kitan or Lyau; who, driven out of Kitay by the king, ſettled in Little Bukharia, and the country to the north, where they founded a powerful ſtate, about A. D. 1124. Thus the

Moguls, properly ſo called, had but a very ſmall extent of empire which could be called their own, if indeed they had any, when Temujin made his appearance. This hero is ſaid by the Tartars to have been of divine origin, as his family could be traced no farther back than ten generations, the mother of whom was got with child by a ſpirit. The names and tranſactions of his predeceſſors are equally uncertain and unimportant; but he himſelf was born in 1163, and is ſaid to have come into the world with congealed blood in his hands; whence it was prognoſticated that he would be a great warrior, and obtain the victory over all his enemies. This prediction, if any ſuch there was, Temujin moſt literally fulfilled.

(4.) **Moguls, history of the, till the death of Jenghiz Khan.** At the time of his father's deceaſe, his ſubjects amounted to between 30,000 and 40,000 families; but of theſe two 3ds quickly deſerted, and Temujin was left almoſt without ſubjects. When only 13 years of age, he fought a bloody battle againſt theſe revolters; but either was defeated, or gained an indeciſive victory; ſo that he remained in obſcurity for 27 years longer. His good fortune at laſt he owed to the friendſhip of Vang Khan, who ruled over a great number of Tartar tribes N. of Kitay, and was named *Preſter John* among the Europeans. This prince took Temujin under his protection; and a rebellion being afterwards raiſed againſt himſelf, Temujin was made his general, and the khan was kept in poſſeſſion of his throne; ſoon after which, Temujin ſubdued the tribes which had revolted from himſelf, and treated them with the utmoſt barbarity. This happened in 1201; but Vang Khan, inſtead of continuing the friend of Temujin, now became jealous, and reſolved to deſtroy him by treachery. With this view he propoſed a marriage between Temujin's ſon Juji and his own daughter, and another between Temujin's daughter and his own ſon. Temujin was invited to the camp of Vang Khan, to celebrate this double marriage; but, receiving intelligence of his intention, he excuſed himſelf to Vang Khan's meſſengers, and deſired that the ceremony might be put off to ſome other time. A few days after the departure of theſe meſſengers, Badu and Kiſhlik, two brothers, who kept the horſes of one of Vang Khan's chief domeſtics, came and informed Temujin, that the grand khan, finding he had miſſed his aim, was reſolved to ſet out inſtantly, and ſurpriſe him next morning, before he could ſuſpect any danger. Temujin, on this, quitted his camp in the night, and retired with all his people to ſome diſtance. He was ſcarce gone when Vang Khan's troops arrived, and diſcharged an incredible number of arrows among the empty tents; but finding nobody there, they purſued Temujin in ſuch haſte that they fell into great diſorder. In this condition they were ſuddenly attacked and routed by Temujin; after which an open war with Vang Khan took place. By this quarrel almoſt all the princes of Tartary were put in motion, ſome ſiding with Temujin, and others with Vang Khan. But at laſt Vang Khan was overthrown in a battle, where he loſt 40,000 men; and obliged to fly for refuge to a prince named *Tayyan Khan*, who was Temujin's father-in-law, and by whom he was ungenerouſly put to death. Temujin immediately began to ſeize on his dominions, great part of which voluntarily ſubmitted; but a confederacy was formed againſt him by a number of Vang Khan's tributaries, at the head of whom was Jamuka, a prince who had already diſtinguiſhed himſelf by his enmity to Temujin; and even Tayyan Khan himſelf was drawn into the plot, through jealouſy of his ſon-in-law's good fortune. But Temujin was well prepared; and in 1204 attacked Tayyan Khan, routed his army, killed himſelf, and took Jemuka priſoner, whoſe head he cauſed inſtantly to be ſtruck off; after which he marched againſt the other tribes who had conſpired againſt him. Them he quickly reduced; took a city called *Kaſhim*, where he put all to the ſword who had borne arms againſt him; and reduced all the Mogul tribes in 1205. Temujin now, having none to oppoſe him, called a general diet, to be held on the firſt day of ſpring 1206. To this diet were ſummoned all the great lords, both Moguls and Tartars; and in the mean time, to eſtabliſh good order in the army, he divided his ſoldiers into bodies of 10,000, 1000, 100, and 10 men, with their reſpective officers, all ſubordinate to the generals, or thoſe who commanded the bodies of 10,000; and theſe were to act under his own ſons. On the day of holding the diet, the princes of the blood and great lords appeared dreſſed in white. Temujin, dreſſed in the ſame manner, with his crown on his head, ſat down on his throne, and was complimented by the whole aſſembly; who confirmed the Mogul empire to him and his ſucceſſors, adding all thoſe kingdoms which he had ſubdued, the deſcendants of whoſe vanquiſhed khans were deprived of all right or title to them; after which he was proclaimed emperor with much ceremony. During this inauguration, a pretended prophet declared that he came from God to tell the aſſembly, that thenceforth Temujin ſhould aſſume the name of Jenghiz Khan, or *the Moſt Great Khan of khans*; prophecying alſo, that all his poſterity ſhould be khans from generation to generation. This prophecy, which was no doubt a trick of Temujin's, had a ſurpriſing effect on his ſubjects. Jenghiz Khan having now reduced under his ſubjection all the wandering tribes of Moguls and Tartars, began to think of reducing thoſe countries to the S. and SW. of his own, where the inhabitants were much more civilized than his own ſubjects, and the countries full of fortified cities. He began with the emperor of Hya, whoſe dominions he invaded in 1209, who at laſt ſubmitted to become his tributary. But in the mean time Jenghiz Khan himſelf was ſuppoſed to be tributary to the emperor of Kitay; who, in 1210, ſent him an officer, demanding the cuſtomary tribute. This was refuſed with the utmoſt indignation, and a war commenced, which ended not but with the diſſolution of the empire of Kitay, as mentioned under the article China, § 9, 10. In 1216, Jenghiz Khan reſolved to carry his arms weſtward, and therefore left his general Muchuli to purſue his conqueſts in Kitay. In his journey weſtward he overthrew an army of 300,000 Tartars, who had revolted againſt him; and, in 1218, ſent ambaſſadors, deſiring an alliance with Mohammed Karazm

Shah, emperor of Gazna. His ambaſſador was haughtily treated; however, the alliance was concluded, but ſoon after broken through the treachery of the Gaznian monarch's ſubjects. This brought on a war attended with the moſt dreadful devaſtions, and which ended with the entire deſtruction of the empire of Karazm or Gazna, as related under the article GAZNA. See INDIA, § 10. After the reduction of Karazm, part of the Moguls broke into Iran or Perſia, where alſo they made large conqueſts, while others of their armies invaded Georgia and the countries to the weſt; all this time committing ſuch enormities, that the Chineſe hiſtorians ſay both men and ſpirits burſt with indignation. In 1225, Jenghis Khan returned to Hya, where he made war on the emperor for having ſheltered ſome of his enemies. The event was, that the emperor was ſlain, and his kingdom conquered, or rather deſtroyed; which, however, was the laſt exploit of this moſt cruel conqueror, who died in 1227, as he marched to complete the deſtruction of the Chineſe.

(5.) **MOGULS, HISTORY OF THE, TILL THE DESTRUCTION OF DELHI.** The Mogul empire, at the death of Jenghiz Khan, extended over a prodigious tract of country; being more than 1800 leagues in length from E. to W. and upwards of 1000 in breadth from N. to S. Its princes, however, were ſtill inſatiable, and puſhed on their conqueſts on all ſides. Otkay was acknowledged emperor after Jenghiz Khan; and had under his immediate government MOGULESTAN (the country of the Moguls properly ſo called), Kitay, and the countries eaſtward to the Tartarian ſea. Jagatay his brother governed under him a great part of the weſtern conqueſts. The country of the Kipjacks, and others on the E. and NE, N. and NW. were governed by Batu or Patu the ſon of Juji, who had been killed in the wars; while Tuli or Toley, another ſon of Jenghiz Khan, had Khoraſſan, Perſia, and what part of India was conquered. On the E. ſide the Mogul arms were ſtill attended with ſucceſs; not only the empire of Kitay, but the ſouthern part of CHINA, was conquered, as related under that article, § 11. On the W. ſide matters continued much in the ſame way till 1254, when Magu, or Menko, the 4th khan of the Moguls, who was afterwards killed at a ſiege in China, (ſee CHINA, § 11.) raiſed a great army, which he gave to his brother Hulaku, to extend his dominions weſtward. In 1255, he entered Iran, where he ſuppreſſed the Iſmaelians or Aſſaſſins; (ſee ASSASSINS;) and two years afterwards he advanced to Bagdad, which he took, and cruelly put the khalif to death, treating the city with no more lenity than the Moguls uſually treated thoſe which fell into their hands. Every thing was put to fire and ſword; and in the city and its neighbourhood the number of ſlain, it is ſaid, amounted to 1,600,000. The next year he invaded Syria; the city of Damaſcus was delivered up, and, as it made no reſiſtance, the inhabitants were ſpared; but Aleppo being taken by ſtorm, a greater ſlaughter enſued there than had taken place at Bagdad, not even the children in their cradles being ſpared. Some cities of this country revolted in a year or two after; but falling again into the hands of the Moguls, they were plundered, and the inhabitants made ſlaves, or butchered without mercy. Hulaku died in 1264, and at his death we may fix the greateſt extent of the Mogul empire. It now comprehended the whole continent of Aſia, excepting part of Indoſtan, Siam, Pegu, Cochinchina, and a few countries of Leſſer Aſia, which had not been attacked by them; and during all theſe vaſt conqueſts no Mogul army had been conquered, except one by Jaloloddin, as mentioned under the article GAZNA. From this period, however, the empire began to decline. The ambition of the khans having prompted them to invade the kingdoms of Japan and Cochinchina, they were miſerably diſappointed in their attempts, and loſt a great number of men. The ſame bad ſucceſs attended them in Indoſtan; and in a ſhort time this mighty empire broke into ſeveral ſmaller ones. The governors of Perſia being of the family of Jenghiz Khan, owned no allegiance to any ſuperior; thoſe of Tartary did the ſame. The Chineſe threw off the yoke; (ſee CHINA, § 12.) and thus the continent of Aſia wore much the ſame face that it had done before Jenghiz Khan began his conqueſts. The ſucceſſors of Hulaku reigned in Perſia till 1335; but that year Abuſaid Khan, the 8th from Hulaku, dying, the affairs of that country fell into confuſion for want of a prince of the race of Jenghiz Khan. The empire, therefore, was divided among a great number of petty princes, who fought againſt each other almoſt without intermiſſion, till, in 1369, TIMUR BEK, or TAMERLANE, one of theſe princes, having conquered a number of others, was crowned at Balkh, with the pompous title of *Sakeb Keran*; that is, "the emperor of the age, and conqueror of the world." As he had juſt before taken that city, and deſtroyed one of his moſt formidable rivals, who had ſhut himſelf up in it, the new emperor began his reign with beheading ſome of the inhabitants, impriſoning others, burning their houſes, and ſelling the women and children for ſlaves. In 1370 he croſſed the Sihun, made war on the Getes, and attacked Karazm. Next year he granted a peace to his enemies; but two years after, he again invaded the country of the Getes, and by the year 1379 had fully conquered that country as well as Korazan; and from that time he continued to extend his conqueſts in much the ſame manner as Jenhiz Khan had done though with leſs cruelty. In 1387 he had reduced Armenia, Georgia, and all Perſia; the conqueſt of which laſt was completed by the reduction of Iſpahan, 70,000 of the inhabitants of which were ſlaughtered on account of a ſedition. After the reduction of Perſia, Timur turned his arms northward and weſtward, ſubduing all the countries to the Euphrates. He took Bagdad; ſubdued Syria; and having ravaged great part of Ruſſia, returned to Perſia in 1396, where he ſplendidly feaſted his whole army. In 1398 he invaded Indoſtan, croſſed the Indus on the 17th of September, reduced ſeveral fortreſſes, and made a vaſt number of captives. However, being afraid left, in caſe of any emergency, theſe priſoners might take part with the enemy, he ordered his ſoldiers to put all their Indian ſlaves to death and, in conſequence of this inhuman order, more than 100,000 of theſe poor wretches were ſlaughtered in leſs than an hour. In the beginning of 1399, Timur was met by the Indian army; whom, after a deſperate battle, he defeated with great ſlaughter, and ſoon after took the city of Dehli, the capital of the country. Here he ſeated himſelf on the throne of the Indian emperors, and here the ſharifs, kadis, and principal inhabitants of the city, came to make their ſubmiſſion, and begged for mercy. The tame elephants and rhinoceroſes likewiſe were brought to kneel before him, as they had been accuſtomed to do to the Indian emperors, and made a great cry as if they implored his clemency. Theſe war-elephants, 120 in number, were, at his return, ſent to Samarcand, and to the province where his ſons reſided. After this, at the requeſt of the lords of the court, Timur made a great feaſt; at which he diſtributed preſents to the princes and principal officers. Dehli at this time conſiſted of three cities, called *Seyri*, *Old Dehli*, and *Jehan Penah*. Seyri was ſurrounded with a wall in form of a circle. Old Dehli was the ſame, but much larger, lying SW. of the other. Theſe two parts were joined on each ſide by a wall; and the 3d, lying between them, was called *Jehan Penah*, which was larger than Old Dehli. Penah had 10 gates; Seyri had 7, three of which looked towards Jehan Penah; this laſt had 13 gates, 6 to the NW. and 7 to the SE. Every thing ſeemed to be quiet, when, on the 12th Jan. 1399, the ſoldiers of Timur being aſſembled at one of the gates of Dehli, inſulted the inhabitants. The great emirs were ordered to put a ſtop to theſe diſorders, but could not; and the gates being open, above 15,000 more ſoldiers got in, while a far greater number of troops committed greater diſorders in Seyri and Jehan Penah. The inhabitants in deſpair fell on them, while the diſorder was increaſed by the admiſſion of more troops; ſo that by the morning of the 13th the whole army was entered, and this great city was totally deſtroyed, and the people maſſacred or ſold for ſlaves. (See INDIA, § 11.) The ſpoils, in jewels, plate, &c. were immenſe. On the 15th, in Old Dehli, the Indians retired into the great moſque to defend themſelves; but being attacked by the Tartars, they were ſlaughtered, and a dreadful carnage enſued throughout the whole city. The artiſans were divided among the princes and commanders; but the maſons were reſerved for the emperor, to build a ſpacious ſtone moſque at Samarcand.

(6.) **MOGULS, HISTORY OF THE, TO THE DEATH OF TAMERLANE.** After this terrible devaſtation, Timur marched into the different provinces of Indoſtan, every where defeating the Indians who oppoſed him, and ſlaughtering the Ghebres or worſhippers of fire. On the 25th of March he ſet out on his return, and on the 9th of May arrived at Samarcand. In a few months after his arrival, he was obliged to go into Perſia, where affairs were in the utmoſt diſorder by the miſconduct of his ſon, whom he had appointed ſovereign of that empire. Timur ſoon ſettled matters; after which he again ſet out on an expedition weſtward, reduced many places in Georgia which had not ſubmitted, and conquered Syria. At the ſame time he quarrelled with Bajazet the Turkiſh ſultan, then buſied in an enterpriſe againſt Conſtantinople. Bajazet had demanded tribute from a prince who was under Timur's protection, and returned an inſulting anſwer to the Tartar ambaſſadors who were ſent to him on that buſineſs. Timur, being an enthuſiaſt in the cauſe of Mahometaniſm, and conſidering Bajazet as engaged in the cauſe of heaven when beſieging a Chriſtian city, was very unwilling to diſturb him in ſo pious a work; and therefore undertook ſeveral expeditions againſt the princes of Syria and Georgia, to give the Turkiſh monarch time to cool. Among other places he again inveſted Bagdad, which had caſt off its allegiance; and having taken it by ſtorm, made ſuch a dreadful maſſacre of the inhabitants, that 120 pyramids were erected with the heads of the ſlain. In the mean time Bajazet continued to give freſh provocation, by protecting one Kava Yuſef a robber, who had inſulted the caravan of Mecca; ſo that Timur at length reſolved to make war upon him. Bajazet, foreſeeing the danger of bringing ſuch a formidable enemy againſt himſelf, aſked pardon, by a letter, for what was paſt, and promiſed obedience to Timur's will for the future. This embaſſy was graciouſly received; and Timur returned for anſwer, that he would forbear hoſtilities, provided Bajazet would either put Kava Yuſef to death, ſend him to the Tartar camp, or expel him out of his dominions. Along with the Turkiſh ambaſſadors he ſent one of his own; telling Bajazet that he would march into the confines of Antolia, and there wait his final anſwer. Though Bajazet had ſeemed at firſt willing to come to an agreement with Timur, yet he now behaved in ſuch an unſatisfactory manner, that the Tartar monarch deſired him to prepare for war; upon which he raiſed the ſiege of Conſtantinople, and having met Timur with an army greatly inferior to the Tartars, was utterly defeated and taken priſoner. (See BAZAZET I.) This victory was followed by the ſubmiſſion of many places of Leſſer Aſia to Timur; the Greek emperor owned himſelf his tributary, as did alſo the ſultan of Egypt. After this, Timur once more returned to Georgia, which he cruelly ravaged; after which he marched to Samarcand, where he arrived in 1405. Here, being now old, this mighty conqueror began to look forward to that ſtate which at one time or other is the dread of all mankind; and to quiet the remorſe of his conſcience, came to the following curious reſolution, which he communicated to his friends; viz. that "as the vaſt conqueſts he had made were not obtained without *ſome violence*, which had occaſioned the deſtruction of a great number of God's creatures, he was reſolved, by way of atonement for his paſt crimes, to perform ſome good action; namely, to make war on the infidels, and *exterminate* the idolaters of China." This *atonement*, however, he did not live to accompliſh; for he died the ſame year of a burning fever, in the 71ſt year of his age, and 36th of his reign.

(7.) **MOGULS, HISTORY OF THE, TO THE PRESENT PERIOD.** On the death of Tamerlane, his empire fell immediately into great diſorder, and the civil wars continued for five or ſix years; but at laſt peace was reſtored, by the ſettlement of

Shah Rukh, Timur's ſon, on the throne. He did not, however, enjoy the empire in its full extent, or indeed much above one half of it; having only Karazm, Khoraſſan, Kandahar, Perſia, and part of Indoſtan. Neither was he able, though a brave and warlike prince, to extend his dominions, though he tranſmitted them to his ſon ULAG BEG. He proved a wiſe and learned monarch; and is famous for the aſtronomical tables which he cauſed to be compoſed. See ASTRONOMY, *Index*. He was killed in 1448 by his ſon Abdollatif, who ſix months after was put to death by his own ſoldiers. After the death of Abdollah, a grandſon of Shah Rukh, ſeized the throne; but, after reigning one year, was expelled by Abuſaid Mirza, the grandſon of Miran Shah the ſon of Timur. His reign was one continued ſcene of wars and tumults; till at laſt he was defeated and taken priſoner by one Haſſan Beg, who put him to death in 1468. From this time we may conſider the empire of Timur as diſſolved, though his deſcendants ſtill reigned in Perſia and Indoſtan, the latter of which is ſtill called the MOGUL'S EMPIRE. On the death of the above mentioned monarch, his ſon Babor ſucceeded him, but was ſoon driven out by the Uſbeck Tartars; after which he reſided ſome time in Gazna, when he made incurſions into Hindoſtan, and at length became maſter of the whole empire, excepting the kingdoms of Dekan, Guzerat, and Bengal. For the tranſactions ſubſequent to this period, ſee HINDOSTAN and INDIA. What remains to be ſupplied here is an account of the revolution that lately happened at Delhi the capital of the Mogul empire. Gholam Kahdur, author of the revolution, was the ſon of Zabda Khan. His father diſinherited him, and drove him from his preſence on account of his vices and crimes. Shah Allum, the king of Dehli, took him under his protection, treated him as his own ſon, and conferred on him the firſt title in the kingdom, Amere ul Omraow. He lived with the king, and raiſed a body of about 8000 troops of his own countrymen the Moguls, which he commanded. Gholam Khadur was of a paſſionate temper, haughty, cruel, ungrateful, and debauched. In the end of 1788, the king had formed ſuſpicions that ſome of the neighbouring princes would attempt to plunder his territories. Theſe ſuſpicions were verified by the approach of a conſiderable army towards his capital, commanded by Iſmael Beg Khan, and aſſiſted by Scindia. Gholam Khador told the king on this, that he had nothing to fear; for that he had an army ſufficiently ſtrong to oppoſe the enemy: that all the king had to do was to march out with his troops, give them a ſupply of caſh, and he would lay his head on the enemy's being overcome. The king on this replied, that he had no money to carry on a conteſt. Gholam Khadur ſaid, that this objection would ſoon be obviated, as he (Gholam Khadur) would advance the neceſſary ſupply of caſh, and that all his majeſty had to do was to head the army. "This (ſaid he) will animate them and give them confidence; the preſence of a monarch is above half the battle." The king agreed in appearance, and requeſted Gholam Khadur to aſſemble the army, pay their arrears, and inform them of his intentions. Gholam Khadur retired contented; but great was his aſtoniſhment, when next day he intercepted a letter fro the king to Scindia, deſiring him to make as muc haſte as poſſible, and deſtroy Gholam Khadur for, ſays he, Khadur wiſhes me to act contrar to my wiſhes, and oppoſe you. On this diſcovery, Gholam Khadur marched out with his Moguls, croſſed the Jumna, and encamped on th other ſide oppoſite the fort of Delhi. He ſent t the king the intercepted letter, and aſked him i his conduct did not deſerve to be puniſhed by th loſs of his throne? He began to beſiege the for and carried it in a few days. He entered the palace in arms; flew to the king's chamber; inſulted the old man in the moſt barbarous manner knocked him down; and, kneeling on his breaſt with his knife took out one of his eyes, and h ordered a ſervant of the king's to take out th other. After this he gave up the palace to pillag and went to the king's zazana (the reſidence c his women); where he inſulted the ladies, an tore their jewels from their noſes and ears, an off their arms and legs. As he had lived with th king, he was well acquainted with the differen places where the king's treaſures were hid; h dug up the floor of the king's own bed room, an found there two cheſts, containing in ſpeci 120,000 gold mohurs, or L.192,000 ſterling which he took, and vaſt ſums more. To get a the hidden jewels of the women, he practiſe one of the moſt villanous ſchemes that ever wa thought of. The third day after theſe horri cruelties, he ordered that all the king's ladie daughters ſhould come and pay their reſpects t him, and promiſed to ſet thoſe free who coul pleaſe him by their appearance and dreſs. Th innocent, unſuſpicious women, brought out thei jewels, and adorned themſelves in their richeſ attires to pleaſe this ſavage. Gholam Khadu commanded them to be conveyed into a hal where he had prepared common dreſſes for them theſe dreſſes he made them put on by the aſſiſtance of eunuchs; and taking poſſeſſion of thei rich dreſſes and jewels, ſent the women home t the palace to lament their loſs, and curſe hi treachery. Gholam Khadur did not even ſto here; but inſulted the princes, by making th dance and ſing. The moſt beautiful of the ki daughters, Mobaruck ul Moulk, was brought this tyrant to gratify his luſt; but ſhe reſiſted, is ſaid to have ſtabbed herſelf to avoid fo Scindia ſoon after this came to the aſſiſtanc the king, or rather to make him his prey. Gho Khadur fled and took refuge in the fort of Ag a large city about 150 miles from Dehli. Sc dia's troops beſieged him there. Perceiving laſt that he muſt be taken if he continued in fort, he took the advantage of a dark night, fed his ſaddle with a large ſtock of precious ſto took a few followers, and fled from the fort wards Perſia. Unluckily for him, he fell off horſe the ſecond night after his flight; and t a party of horſe which had been ſent in pu of him came up with him, and took him priſo He was brought to Scindia, who, after expo him for ſome time in irons, in a cage, orde his ears, noſe, hands, and feet, to be cut and his eyes taken out; in which ſtate he allow allowed to expire. Scindia rewarded himſelf by ſeizing upon the kingdom which he came to guard: And all that now belongs to Shah Allum, the nominal emperor, is the city of Dehli, with a ſmall diſtrict around it, where, deprived of ſight, he remains an empty ſhadow of royalty; an inſtance of the inſtability of human greatneſs, and of the precarious ſtate of deſpotic governments.

MOGWITZ, a town of Sileſia, in Neiſſe.

MOGYESZO, a town of Hungary, 12 miles W. or Tokay.

MOHACS, a town of Hungary, on the Danube: famous for a battle fought in 1526, between the Hungarians under Lewis, the laſt king of Hungary, and the Turks under Soliman II; wherein the former were defeated with the loſs of 22,000 men, and Lewis falling from his horſe during the rout, was ſuffocated in a muddy brook. Another battle was fought near it, in 1687, between the Turks under the grand vizier, and the Chriſtians under Pr. Charles of Loraine, wherein the Turks were defeated with the loſs of 10,000 men, and all their cannon and baggage. It lies 36 miles NW. of Bacs, and 56 W. of *Zegedin*.

(1.) * MOHAIR. *n. ſ.* [*mohere, moire*, French.] Thread or ſtuff made of camels or other hair.—

> She when ſhe ſees her friend in deep deſpair,
> Obſerves how much a chintz exceeds *mohair*.
> *Pope.*

(2.) Mohair, in commerce, is the hair of a kind of goat frequently about Angria in Turkey; the inhabitants of which city are all employed in the manufacture of camblets made of this hair. Some give the name *mohair* to the camblets or ſtuffs made of this hair: of theſe there are two kinds: the one ſmooth and plain, the other watered like tabbies. The difference between the two only conſiſts in this, that the latter is calendered, the other not. There are alſo mohairs both plain and watered, whoſe woof is of wool, cotton, or thread.

Mohair Shell, in conchyliology a peculiar ſpecies of voluta, which ſeems of a cloſely and finely reticulated texture, and reſembles on the ſurface a piece of mohair or very cloſe ſilk-worm's web.

MOHAMMED. See Mahomet.

MOHAMMEDAN, or Mahometan, *adj.* Of or belonging to Mahomet, or his ſyſtem of ſuperſtition.

MOHAMMEDANISM. See Mahometaniſm.

MOHAMMEDANS. See Mahometans.

MOHATZ, a town of Lower Hungary, in Baraniwar, at the confluence of the Danube and the Craſſe, 17 miles NW. of Eſſeck: perhaps the ſame with Mohacs. Lon. 19. 56. E. Lat. 45. 36. N.

(1.) MOHAWK, a river of New York, which riſes N. of Fort Stanwix, 8 miles from Sable river, runs S. 20 miles to the Fort; then E. 110 miles, and after receiving many ſtreams, falls into the Hudſon, by 3 mouths, oppoſite to Lanſinburgh and Troy, about 9 miles N. of Albany. At the *Cohoez*, 3 miles above theſe mouths, it is 1000 feet broad, and falls over a rock of equal breadth, about 40 feet perpendicular in height. A mile below this it has a fine bridge, built in 1795; 1000 feet long, 24 broad, and 15 high above the river, ſupported by 13 ſtone pillars.

(2.) Mohawk, a branch, or rather head water of the Delaware, which riſes from lake Uttayantha, runs 45 miles SW, and thence 12 SE. when it joins the Popachton, and forms the Delaware.

(3.) Mohawk, a town of New York in Montgomery county, in a fertile country on the S. bank of the river, N° 1. It was deſerted by the Mokawks in 1780; and in 1790, contained 4440 inhabitants, including 111 ſlaves.

(4.) Hohawk Country, a part of N. America, on the banks of the Mohawk, (N° 1.) formerly inhabited by one of the Six Nations of the Iroquois, ſituated between New York and Lake Ontario.

(1.) Mohawks, a nation of N. American Indians, who are acknowledged by the other tribes of the Six Nations to be "the true old head of the confederacy." They were formerly very powerful, and inhabited the above country. Being ſtrongly attached to the family of Sir William Johnſton, a part of them emigrated with Sir John Johnſton to Canada in 1776. About 300 of theſe reſide in Upper Canada. The reſt left their ſettlement at Hunter Fort in ſpring 1780, and are now ſettled on the Grand river. They had made great advances in civilization; moſt of them could ſpeak Engliſh, and many of them profeſſed their faith in the Chriſtian religion. Their epiſcopal church ſtill remains at Hunter Fort. None of them are now in the United States.

(2.) Mohawks. See Muck, § 2.

MOHEGAN, a town of Connecticut, between Norwich and New London, where remains of the Mohegan tribe of Indians reſide.

MOHICCONS; 1. a tribe of N. American Indians who inhabit on a branch of the Suſquehannah: They have 100 warriors. 2. Another tribe in the N. Weſtern Territory, near Sanduſky, between the Sciota and Muſkingum. Warriors 60.

MOHILA, Mohilla, or Mohlia, one of the Comorra iſlands in the Indian ſea, between the N. end of Madagaſcar and the continent of Africa. The inland parts are mountainous and woody; but the lands adjoining to the ſea are watered by ſeveral fine ſtreams which deſcend from the mountains; and the graſs is green all the year, ſo that it affords a moſt delightful habitation. Proviſions of all kinds abound; and the Eaſt India ſhips of different nations touch here for refreſhment.

MOHILEF, or (1.) MOHILOF, a government of Ruſſia, formed out of part of *Lithuania*, in 1772; when Catherine II. compelled the Poles to cede to her all that part of Lithuania which borders on Ruſſia, comprehending one 3d of the country. This ſhe erected into the two governments or provinces of Mohilef and Polotzk.

(2.) Mohilof, a large and ſtrong city of Poland, in the above prov. and palatinate of Miezſlau. It is well built, populous, and has a conſiderable trade. Near this place the Swedes obtained a great victory over the Ruſſians in 1707.

MOHL, a town of Germany, in Holſtein.

(1.) * MOHOCK. *n. ſ.* The name of a cruel nation of America given to ruffians who infeſted, or rather were imagined to infeſt, the ſtreets of London.—

From milk-ſop he ſtarts up *mohock.* *Prior.*

Who has not trembled at the *mohock's* name? *Gay.*

—Thou haſt fallen upon me with the rage of a mad dog, or a *mohock.* *Dennis.*

(2.) Mohock. See Mohawks, and Muck. § 2.

MOHR, a town of Germany, 5 miles W. of Hoya.

MOHRAU, a town and river of Sileſia.

MOHRIN, a town of Brandenburg.

MOHRUNGEN, a town and lake of Pruſſia, in Oberland. In 1401 the town was taken by the Poles; in 1461 by the Teutonic knights; in 1520, it was burnt by the Poles; and it was again burnt in 1697.

MOHURBUNGE, a province of Indoſtan, SW. of Bengal.

MOHYLNA, a town of Lithuania, in Minſk.

MOIA, a town of Naples, in Principato.

MOJAN, an iſland of Sweden, in the Baltic. Lon. 18. 45. E. of Ferro. Lat. 39. 22. N.

* MOIDERED. *adj.* [properly *moddered*, or *mudded.*] Crazed. *Ainſworth.*

MOIDIEU, a town of France, in the department of Iſere, 6 miles E. of Vienne.

* MOIDOR. *n. ſ.* A Portugal coin, rated at one pound ſeven ſhillings.

* MOIETY. *n. ſ.* [*moitie*, Fr. from *moien*, the middle.] Half; one of two equal parts.—This company being divided into two equal *moieties*, the one before, the other ſince the coming of Chriſt. *Hooker.*—

The death of Antony
Is not a ſingle doom, in that name lay
A *moiety* of the world. *Shak.*
Touch'd with human gentleneſs and love,
Forgive a *moiety* of the principal. *Shak.*

—The militia was ſettled, a *moiety* of which ſhould be nominated by the king, and the other *moiety* by the parliament. *Clar.*—The more beautiful *moiety* of his majeſty's ſubjects ſhould eſtabliſh a truce. *Addiſ.*

MOIGOLSCHAR, a cape of Nova Zembla.

(1.) * *To* Moil. *v. a.* [*mouiller*, Fr.] 1. To daub with dirt.—All they which were left were *moiled* with dirt and mire by reaſon of the deepneſs of the rotten way. *Knolles.* 2. To weary.—No more tug one another thus, nor *moil* yourſelves, receive prize equal. *Chapman.*

(2.) * *To* Moil. *v. n.* [*mouiller*, French.] 1. To labour in the mire.—*Moil* not too much under ground, for the hope of mines is very uncertain. *Bacon.* 2. To toil; to drudge.—The name of the laborious *William Noy*, attorney-general to Charles the Firſt, was anagrammatiſed, *I moyl in Law.* *Howel.*—They toil and *moil* for the intereſt of their maſters, that in requital break their hearts. *L'Eſtrange.*—Oh the endleſs miſery of the life I lead! cries the *moiling* huſband; to ſpend all my days in ploughing. *L'Eſtrange.*

Now he muſt *moil* and drudge for one he loaths. *Dryden.*
With thee 'twas Marian's dear delight
To *moil* all day, and merry make at night. *Gay.*

(1.) MOINE, Francis Le, an excellent French painter, born at Paris in 1688, and trained up under Galloche, profeſſor of the academy of painting; which office he afterwards filled. Le Moine painted the grand ſaloon at the entrance into the apartments of Verſailles which repreſents the apotheoſis of Hercules. He took 4 years to perform it; and Lewis XV. was ſo well pleaſed with it, that he made him his firſt painter in 1736, and gave him a penſion of 4000 livres. But in a fit of lunacy he run himſelf through with his ſword, and died, June 4, 1737, aged 49.

(2.) Moine, Peter le, a French poet, born at Chaumont in Baſſigni, A. D. 1602. He joined the ſociety of Jeſuits, and enjoyed ſeveral offices among them. He is chiefly known by his verſes, which were collected into one vol. folio in 1671. They ſhow genius and fancy, but are very extravagant and bombaſtic. Among his proſe works are, 1. *La Devotion aiſeé*, Paris, 1652, 8vo; a book which produced more mirth than devotion. 2. *Penſées Morales.* 3. A ſhort Treatiſe on Hiſtory, in 12mo. He died at Paris, Aug. 22, 1672, aged 70.

(3.) Moine, Stephen le, a very learned French proteſtant miniſter, born at Caen 1624. He was well ſkilled in the Greek, Latin, and Oriental tongues, and profeſſed divinity with high reputation at Leyden; where he died in 1689. Several diſſertations of his are printed together, entitled *Varia Sacra*, in 2 vols 4to. He alſo wrote other works.

(4.) Moine, a bay of Newfoundland.

MOINGT, a town of France, in the dep. of the Rhone and Loire, 2 miles S. of Montbriſon.

MOIRA, or Moyra, a town of Ireland, in the county of Down, Ulſter, 69 miles from Dublin: noted for its linen manufacture, and a monthly market. Lord Moira has in it a very beautiful ſeat; and it has a handſome church, a charity ſchool, and two diſſenting meeting houſes.

MOIRANS, a town of France, in the dep. of Iſere, 33 miles ESE. of Vienne.

MOISDANS, a town of France, in the dep. of the Lower Loire, 6 miles S. of Chateaubriant.

MOISI, a river of Canada, running into the St Lawrence, in Lon. 65. 40. W. Lat. 50. 15. N.

MOISLAINS, a town of France, in the dep. of Somme, 3 miles N. of Peronne.

MOISAC, a town of France, in the dep. of Lot on the Tarn, 13 miles NW. of Montauban, and 9 S. of Lazerte. Lon. 1. 17. E. Lat. 44. 6. N.

* MOIST. *adj.* [*moiſte*, *moite*, French.] 1. Wet, not dry: wet, not liquid; wet in a ſmall degree.

The hills to their ſupply
Vapour, and exhalation duſk and *moiſt*,
Sent up amain. *Milton.*
Why were the *moiſt* in number ſo outdone,
That to a thouſand dry they are but one?
Blackmore.

—Many who live well in a dry air, fall into all the diſeaſes that depend upon a relaxation in a *moiſt* one. *Arbuthnot.*—

Nor yet, when *moiſt* Arcturus clouds the ſky,
The woods and fields their pleaſing toils deny.
Pope.

2. Juicy; ſucculent. *Ainſ.*

* *To* Moist. } *v. a.* [from *moiſt.*] To make
* *To* MOISTEN. } damp; to make wet to a ſmall degree; to damp.—

Write till your ink be dry; and with your tears
Moiſt it again; and frame ſome feeling line. *Shak.*

— 1.

—His bones are *moiſtened* with marrow. *Job* xxi. 14.—A pipe a little *moiſtened* on the inſide, ſo as there be no drops left; maketh a more ſolemn ſound than if the pipe were dry. *Bacon.*—The ſwelling river is reduced into his ſhallow bed, with ſcarce water to *moiſten* his own pebbles. *Dryden.*

* MOISTENER. *n. ſ.* [from *moiſten.*] The perſon or thing that moiſtens.

* MOISTNESS. *n. ſ.* [from *moiſt.*] Dampneſs; wetneſs in a ſmall degree.—Pleaſure both kinds take in the *moiſtneſs* and denſity of the air. *Bacon.* —The ſmall particles of brick or ſtone the leaſt moiſtneſs would join together. *Addiſon's Guardian.*

(1.) * MOISTURE. *n. ſ.* [*moiteure*, Fr. from *moiſt.*] 1. State of being moiſt; moderate wetneſs.—Sometimes angling to a little river near hand, which, for the *moiſture* it beſtowed upon roots of ſome flouriſhing trees, was rewarded with their ſhadow. *Sidney.*—Set ſuch plants as require much *moiſture* upon ſandy, dry grounds. *Bacon.*—

While dryneſs *moiſture*, coldneſs heat reſiſts,
All that we have, and that we are, ſubſiſts.
Denham.

2. Small quantity of liquid.—

All my body's *moiſture*
Scarce ſerves to quench my furnace-burning heat.
Shak.

When you ſcoop'd it dry,
And offer'd the full helmet up to Cato,
Did he not daſh th' untaſted *moiſture* from him.
Addiſon.

(2.) Moisture. See Humidity. The moiſture of the air has conſiderable effects on the human body. For the quantity and quality of the food, and the proportion of the meat to the drink being given, the weight of a human body is leſs, and conſequently its diſcharges greater in dry than in wet weather, which may be thus accounted for: the moiſture of the air moiſtens the fibres of the ſkin, and leſſens perſpiration by leſſening their vibratory motion. When perſpiration is thus leſſened by the moiſture of the air, urine is indeed by degrees increaſed, but not equally. Hence, according to Dr Bryan Robinſon, to keep a body of the ſame weight in wet weather as in dry, either the quantity of food muſt be leſſened, or the proportion of the meat to the drink increaſed; and both theſe may be done by leſſening the drink without making any change in the meat. The inſtrument uſed for determining the degree of moiſture in the air, is called an *hygrometer.* See Hygrometer.

MOIVRE, Abraham, F. R. S. an eminent mathematician, born at Vitri in Champagne, A. D. 1667. His father was a ſurgeon. At the revocation of the edict of Nantes, he determined to fly into England rather than abannon the proteſtant religion. Before he left France, he had begun to ſtudy mathematics; and having perfected himſelf in that ſcience in London, he reſolved to teach it. Newton's *Principia* ſhowed him how little progreſs he had made in a ſcience of which he thought himſelf maſter. From this work he acquired a knowledge of the geometry of infinities with as great facility as he had learned the elementary geometry. His ſucceſs in theſe ſtudies procured him a ſeat in the Royal Society of London, and in the Academy of Sciences at Paris. His merit was ſo much eſteemed, that he was thought capable of deciding in the famous diſpute between Leibnitz and Newton, concerning the differential calculus. He publiſhed a *Treatiſe on Chances* in 1738, and another *on Annuities* in 1752; both extremely accurate. The Philoſophical Tranſactions contain many intereſting memoirs of his compoſition; ſome on the method of fluxions; others on the lunula of Hippocrates; others on phyſical aſtronomy, in which he reſolved many important problems; and others, on the analyſis of the games of chance. Towards the cloſe of his life he loſt his ſight and hearing, and the demand for ſleep became ſo great, that he required 20 hours of it in a day. He died at London in 1754, aged 87. He was intimately acquainted with the beſt authors of antiquity; and was often conſulted about difficult paſſages in their works. He deteſted all indecent witticiſms againſt religion.

MOKATTAM. See Egypt, § 6.

MOKDASI, a title among the oriental Chriſtians, ſimilar to that of *Hadsji* among the Turks, given to thoſe pilgrims who have not only performed the journey to Jeruſalem, but kept the paſſover in it, and aſſiſted at all the ceremonies of the holy weeks.

* MOKES *of a net.* The meſhes.

MOKHA. See Mocho.

MOKRETZ, a town of Turkey in Bulgaria.

* MOKY. *adj.* Dark: as, *moky* weather. *Ainſ.* It ſeems a corruption of *murky.* In ſome places they call it *muggy.* Duſky; cloudy.

(1.) MOLA, Peter Francis, an eminent painter, born, according to moſt authors, at Lugana, in 1609; or as others affirm, at Coldra, in Como. He was a diſciple of Arpino, and of Albano. When he quitted the latter, he went to Venice, and ſtudied the pictures of Titian, Tintoretto, Baſſan, and Paul Veroneſe. He painted hiſtorical ſubjects and landſcapes with great ſucceſs; particularly the latter. He died in 1665.

(2.) Mola, John Baptiſt, brother to the preceding, was alſo a painter, and of ſome merit, but very inferior to the other.

(3.) Mola. See Midwifery, *Part* I, *Sect.* IV.

(4.) Mola di Bari, a town of Naples, in Bari, on the Adriatic, 12 miles E. of Bari.

(5.) Mola di Gaeta, an ancient town of Naples in Lavora, where Cicero reſided and was murdered; and where the ruins of his houſe are ſtill ſhown. It is ſeated on the Adriatic, near the ruins of Formiæ; 3 miles NE. of Gaeta, and 8 SE. of Fundi. Lon. 17. 50. E. Lat. 41. 5. N.

(6.) Mola Salsa, *Salt-Cake*, in antiquity, was barley parched, and afterwards ground to meal or flour, then mixed with ſalt and frankincenſe, with the addition of a little water. Thus prepared, it was ſprinkled between the horns of the victim before it was killed in ſacrifice. This act was called *immolatio*, and was common to the Greeks and Romans; with this difference, that the *mola* of the Romans was of wheat. The Greeks called it ουλα or ουλοχυτη.

(1.) MOLANDS, a town of Norway, 12 miles NNE. of Chriſtianſand.

(2.) Molands, a town of Kent, near Sandwich.

(1.) MOLANS, a town of France, in the department of the Drome, 9 miles SSE. of Nions.

(2.) Molans, a town of France, in the department of the Upper Saone, 6 miles SW. of Lure.

MOLARDIER, a town of France, in the dep. of Mont Blanc, (ci-devant Savoy), on the Seeran; 8 miles NE. of Chambery.

(1.) MOLARES, or Dentes molares, in anatomy, the large teeth, called in Engliſh the grinders. See Anatomy, § 135.

(2.) Molares glandulæ. See Anatomy, 257.

MOLASSES. See Molosses.

MOLBETSKOI, a town of Ruſſia, in Novogorod.

MOLCHINA, a town of Ruſſia, in Tobolſk.

MOLCZAR, a town of Lithuania.

(1.) MOLD, or Mould, a town of N. Wales, in Flintſhire, where the aſſizes are held. It had a caſtle, which was deſtroyed by Owen Gwyned, in 1144. It is 5 miles S. of Flint, 13 WNW. of Wrexham, and 188 of London.

(2.) Mold, or Mould. See Mould.

MOLDAU, a town of Bohemia, in Leitmeritz; 21 miles NW. of Leitmeritz.

MOLDAVA, a river of European Turkey, which riſes near Hungary, paſſes Niemecz, and runs into the Siret, in Moldavia.

MOLDAVIA, a province of Turkey in Europe, bounded on the NE. by the Nieſter, which divides it from Poland; on the E. by Beſſarabia; on the S. by the Danube, which parts it from Bulgaria; and on the W. by Walachia and Tranſylvania. It is 240 miles long and 150 broad. The climate is good, and the ſoil fruitful, producing corn, wine, rich paſtures, a good breed of horſes, oxen, ſheep, game, fiſh, fowl, honey, wax, and all European fruits. Its principal rivers are the Danube, Dnieſter, Pruth, Bardalach, and Ceret. The inhabitants are Chriſtians of the Greek church, and Jassy is the capital. About the end of the 12th century a colony of Walachians ſettled here under *Bogdan*, who was their firſt prince, and eſtabliſhed their civil and eccleſiaſtical government, the latter under a Greek archbiſhop. In the 14th century, after many ſevere ſtruggles, they fell under the power of the K. of Hungary; and in 1574, they became tributary to the Turks; who appoint a native their prince, *waywode*, or *hoſpodar*. Beſides a large annual tribute, he is obliged to raiſe a great body of horſe. Moldavia is divided into Upper and Lower.

1. Moldavia, Lower, is bounded on the E. by the Dnieſter; SE. by Beſſarabia; S. by the Danube; and W. by the mountains of Tranſylvania.

2. Moldavia, Upper, reaches almoſt to Jaſſy; and is bounded on the E. by the Dnieſter; on the N. by the Dnieſter and Poland; and W. by Tranſylvania.

MOLDAVITZA, a town of Moldavia, 40 miles W. of Suczava.

MOLDEBACH, a river of Upper Saxony, in Thuringia, running into the Unſtrett.

(1.) * MOLE. *n. ſ.* [*mal*, Saxon; *mole*, French; *mola*, Latin.] 1. A *mole* is a formleſs concretion of extravaſated blood, which grows into a kind of fleſh in the uterus, and is called a falſe conception. *Quincy.* 2. A natural ſpot or diſcolouration of the body.—To nouriſh hair upon the *moles* of the face, is the perpetuation of a very ancient cuſtom *Brown's Vulg. Errours.*—Such in painting are th warts and *moles*, which, adding a likeneſs to th face, are not therefore to be omitted. *Dryden.*—That Timothy Trim and Jack were the ſame perſon, was proved, particularly by a *mole* under th left pap. *Arbuthnot.*—The peculiarities in Home are marks and *moles*, by which every common ey diſtinguiſhes him. *Pope.* 3. [From *moles*, Latin *mole*, Fr.] A mound; a dyke.—Sion is ſtraitene on the north ſide by the ſea-ruined wall of th *mole. Sandys.*—

> The *mole* immenſe wrought on
> Over the foaming deep high-arch'd; a bridge
> Of length prodigious. *Milton's Par. Lo*

—The great quantities of ſtones dug out of th rock could not eaſily conceal themſelves, had the not been conſumed in the *moles* and buildings o Naples. *Addiſon on Italy.*—

> Bid the broad arch the dang'rous flood contai
> The *mole* projected break the roaring main. *Pope*

4. [*Talpa.*] A little beaſt that works under ground

> Tread ſoftly, that the blind *mole* may not
> Hear a foot fall; we now are near his cell. *Shak*

—What is more obvious than a *mole*, and yet wha more palpable argument of Providence? *More.*—
—*Moles* have perfect eyes, and holes for them through the ſkin, not much bigger than a pin' head. *Ray on Creation.*—

> Learn of the *mole* to plow, the worm t
> weave. *Pope*

(2.) Mole, in midwifery, (§ 1, *def.* 1.) Se Midwifery, *Part* I, *Sect.* IV.

(3.) Mole, or Mark, (§ 1, *def.* 2.) See Nævus

(4.) Mole, in architecture, (§ 1, *def.* 3.) a maſſive work formed of large ſtones laid in the ſea b means of coffer dams, extended either in a righ line or an arch of a circle, before a port, which it ſerves to cloſe; to defend the veſſels in it from the impetuoſity of the waves, and to prevent th paſſage of ſhips without leave.

(5.) Mole is ſometimes alſo uſed to ſignify th harbour itſelf.

(6.) Mole, [moles,] among the Romans, wa alſo uſed for a kind of mauſoleum, built in manner of a round tower on a ſquare baſe, inſulate encompaſſed with columns, and covered with dome.—The mole of the emperor Adrian, now the caſtle of St Angelo, was the greateſt and moſ ſtately of all the moles. It was crowned with brazen pine apple, wherein was a golden urn containing the aſhes of the emperor.

(7.) Mole, in geography, a river in Surry, ſ named from running under ground. It diſappe at Box-hill, near Darking, in Surry, and emerge again near Leatherhead.

(8.) Mole, a mountain of France, in the dep of Mont Blanc, and late duchy of Savoy.

(9.) Mole, in zoology, (§ 1, *def.* 4.) See Talpa Moles in the fields may be deſtroyed by taking head of two of garlic, onion, or leek, and puttin it into their holes; on which they will run out if frighted, and you may kill them with a ſpear o dog. Or pounded hellebore, white or black with wheat-flour, the white of an egg, milk, and ſweet wine, or metheglin, may be made into a paſte and pellets as big as a ſmall nut may be put into their holes: the moles will eat this with pleaſure and will be killed by it. In places where you would not dig nor break much, the fuming their holes with brimſtone, garlic, or other unſavoury things, drives them away; and if you put a dead mole into a common haunt, it will make them forſake it. Or take a mole-ſpear or ſtaff, and where you ſee them caſt, go lightly; but not on the ſide betwixt them and the wind, leſt they perceive you; and at the firſt or ſecond putting up of the earth, ſtrike them with your mole-ſtaff, downright, and mark which way the earth falls moſt; if ſhe caſts towards the left hand, ſtrike ſomewhat on the right hand; and ſo on the contrary, to the caſting up of the plain ground, ſtrike down and there let it remain; then take out the tongue in the ſtaff, and with the ſpattle, or flat edge, dig round about your grain to the end thereof, to ſee if you have killed her; and if you have miſſed her, leave open the hole and ſtep aſide a little, and perhaps ſhe will come to ſtop the hole again, for they love but very little air; and then ſtrike her again; but if you miſs her, pour into the hole two gallons of water, and that will make her come out. Many may alſo be taken, when going out in a morning to feed, or coming home when fed.

* MOLEBAT. *n. ſ.* [*artbragoriſcus.*] A fiſh. *Ainſ.*

* MOLECAST. *n. ſ.* [*mole* and *caſt.*] Hillock caſt up by a mole.—In Spring let the *molecaſts* be ſpread, becauſe they hinder the mowers. *Mortim.*

* MOLECATCHER. *n. ſ.* [*mole* and *catcher.*] One whoſe employment is to catch moles.—

Get *molecatcher* cunningly mouſe for to kill,
And harrow and caſt abroad every hill. *Tuſſer.*

MOLECH. See Moloch.

MOLE-CRICKET. See Gryllotalpa.

MOLECULA, *Lat.* } a ſmall part of any thing; MOLECULE. *n. ſ.* } a little cake or lump; a ſmall ſpot on the ſkin. *Aſh.*

MOLEDIN, a river of Carinthia, which runs into the Geil, near Mauten.

(1.) * MOLEHILL. *n. ſ.* [*mole* and *hill.*] Hillock thrown up by the mole working under ground. It is uſed proverbially, in hyperboles, or compariſons from ſomething ſmall.—You feed your ſolitarineſs with the conceits of the poets, whoſe liberal pens can as eaſily travel over mountains as *molehills. Sidney.*—

The rocks, on which the ſalt-ſea billows beat,
And Atlas' tops, the clouds in height that paſs,
Compar'd to his huge perſon *molehills* be. *Fairf.*

—A churchwarden, to expreſs Saint Martin's in the Fields, cauſed to be engraved a martin ſitting upon a *molehill* between two trees. *Peacham.*—Our politician having baffled conſcience, muſt not be nonpluſſed with inferior obligations; and, having leapt over ſuch mountains, lie down before a *molehill. South.*

Mountains, which to your Maker's view
Seem leſs than *molehills* do to you. *Roſcommon.*

Strange ignorance! that the ſame man who knows
How far you mount above this *molehill* ſhows,
Should not perceive a difference as great
Between ſmall incomes and a vaſt eſtate! *Dryd.*

(2.) Mole-hills are a very great prejudice to paſture lands, not only in waſting ſo much of the land as they cover, but in hindering the ſcythe in mowing. In the weſt of England they uſe a peculiar kind of inſtrument for the breaking up of theſe; it is a flat board, very thick, and of about 8 inches in diameter, into which there is faſtened a perpendicular handle of 3 or 4 feet long. It has four broad and ſharp iron teeth at the front, which readily cut through the hill, and ſpread the earth it conſiſts of; and behind there is a large knob for breaking the clods. There is, however, a better inſtrument, for deſtroying theſe hills, where they are in very great numbers. This is a kind of horſe machine; it has a ſharp iron about 3 feet over, and with a ſtrong back. It is about 4 or 5 inches broad, and has two long handles, for a horſe to be harnaſſed to, and a croſs bar of iron to ſtrengthen it at the bottom of the handles, reaching from the one handle to the other. The middle of this croſs bar is furniſhed with one, two, or more, ſharp pieces of iron like ſmall plough-ſhares, to cut the mole-hills into 2 3, or more parts. The iron behind is of a ſemicircular figure. A ſingle horſe is harnaſſed to this machine, and a boy muſt be employed to drive it, and a man to hold and guide it; the ſharp irons or ſhares are the firſt things that meet the hill, they run through it, break its texture, and cut it into ſeveral parts; and the circular iron following immediately behind them, cuts up the whole by the roots, and leaves the land level. This inſtrument will deſtroy as many mole-hills in one day as a common labourer can in 8, and would be of very great advantage to the kingdom if brought into general uſe. It is to be obſerved, that this leaving a naked ſpace in the place of every hill, it will be neceſſary to go over the land, and ſow them with hay ſeed, otherwiſe theſe ſpots will want the produce of graſs the firſt years. The farmers in ſome parts of England are not willing to deſtroy the mole-hills, but let them ſtand from year to year, ſuppoſing that they get ſome ground by them, but the advantage by this means is ſo little, that it does not balance the unſightlineſs and damage to the mowing.

MOLENES, two ſmall iſles in the Britiſh Channel, near the coaſt of France: 1. ſix miles SE. of Uſhant: 2. 13½ miles W. of Bas.

MOLENISTS. See Molinists.

MOLENSPURG, a town of Germany in Auſtria, 16 miles SW. of Crems.

MOLE-RATS. See Murine, § 2; Mus, N° III, § 42—46.

MOLESMES, a town of France, in the department of Cote d'Or; 9 miles WSW. of Chatillon.

* *To* MOLEST. *v. a.* [*moleſter*, Fr. *moleſtus*, Latin.] To diſturb; to trouble; to vex.—They have *moleſted* the church with needleſs oppoſition. *Hooker.*—No man ſhall meddle with them, or *moleſt* them in any matter. 1 *Mac.* x. 35.—Pleaſure or pain ſignify whatſoever delights or *moleſts* us. *Locke.*—

The dead wake not to *moleſt* the living. *Rowe.*

* MOLESTATION. *n. ſ.* [*moleſtia*, Lat. from *moleſt.*] Diſturbance; uneaſineſs cauſed by vexation.—Though uſeleſs unto us, and rather of *moleſtation*, we refrain from killing ſwallows. *Brown.*—An internal ſatiſfaction and acquieſcence, or diſſatiſfaction and *moleſtation* of ſpirit attend the practice of virtue and vice reſpectively. *Norris.*

* MOLESTER. *n.ſ.* [from *moleſt.*] One who diſturbs.

MOLESWORTH, Robert, Lord Viſc. Moleſworth, an eminent ſtateſman and writer, born at Dublin in 1656, where his father was a merchant. He was attainted by K. James for his activity on the invaſion by the Prince of Orange; who, when ſettled on the throne, made him a member of the privy-council, and ſent him envoy extraordinary to Denmark. Here he reſided above 3 years, and then returned upon ſome diſguſt, without an audience of leave. Upon his return he drew up his *Account of Denmark*, in which he repreſented that government as arbitrary; and hence gave great offence to George Prince of Denmark. The Daniſh envoy preſented a memorial to K. William concerning it; and furniſhed materials for an anſwer, which was executed by Dr William King. Mr Moleſworth was member of the houſes of commons in both kingdoms: K. George I. made him a commiſſioner of trade and plantations, and advanced him to the peerage of Ireland, by the title of *Baron Philipſtown*, and *Viſcount Moleſworth of Swords*. He died in 1725. He wrote an addreſs to the houſe of commons, for the encouragement of agriculture; and tranſlated *Franco-Gallia*, a Latin treatiſe of the civilian Hottoman, giving an account of the free ſtate of France, and other countries of Europe, before the encroachments made on their liberties.

* MOLETRACK. *n.ſ.* [*mole* and *track.*] Courſe of the mole under ground.—The pot-trap is a deep earthen veſſel ſet in the ground, with the brim even with the bottom of the *moletracks*. *Mort.*

* MOLEWARP. *n.ſ.* [*mole* and *weorpan*, Sax. See MOULDWARP.] A mole.

The *molewarp's* brains mixt therewithal,
And with the ſame the piſmire's gall. *Drayton.*

MOLFETTA, a town of Naples in Bari.

MOLIENS, a town of France, in the dep. of the Somme; 10½ miles W. of Amiens.

MOLIERE, John Baptiſt, a famous French comedian, whoſe original name was POCQUELIN. He was the ſon of a valet de chambre, and was born at Paris about 1620. He ſtudied the claſſics under the Jeſuits in the college of Clermont, and was deſigned for the bar; but on quitting the law ſchools, he turned actor. From his prodigious fondneſs for the drama, he continued till his death to exhibit plays, which were greatly applauded. It is ſaid the firſt motive of his going upon the ſtage was to enjoy the company of an actreſs, for whom he had contracted a violent affection. His comedies are highly eſteemed; and he was well qualified to repreſent domeſtic feuds, and the torments of jealous huſbands, having experienced all this, as he was very unhappy in his wife. His laſt comedy was *La Malade imaginaire*, which was firſt acted in 1673; and Moliere died on the 4th night of its repreſentation; ſome ſay in acting the very part of the *dead man;* but others ſay he died in his bed that night, from the burſting of a vein in his lungs by coughing. The king prevailed with the Abp. of Paris to ſuffer him to be buried in conſecrated ground; though he had irritated the clergy by his *Tartuffe*. The beſt editions of his works are thoſe of Amſterdam, 5 vols 12mo, 1699; and Paris, 6 vols 4to, 1734.

MOLIERES, a town of France, in the dep. o Lot; 10½ miles N. of Montauban, and 16 S. o Cahors.

MOLIGT, a town of France, in the dep. of th Eaſtern Pyrenees; 3 miles NW. of Prades.

(1.) MOLINA, a celebrated Jeſuit, founder o the ſect of the MOLINISTS. He taught that th operations of divine grace were entirely conſiſten with the freedom of human will; and introduce a new hypotheſis to remove the difficulties attending the doctrines of predeſtination and liberty, an to reconcile the jarring opinions of Auguſtine Thomiſts, Semi-Pelagians, and other polemica divines. He affirmed, that the decree of predeſtination to eternal glory was founded upon a previous knowledge and conſideration of the merit of the elect; that the grace, from whoſe operation theſe merits are derived, is not efficaciou by its own intrinſic power only, but alſo by th conſent of our own will, and becauſe it is adminiſtered in thoſe circumſtances, in which the Deity, by that branch of his knowledge which is called *ſcientia media*, foreſees that it will be efficacious. The kind of preſcience, denominated in th ſchools *ſcientia media*, is that foreknowledge o future contingents that ariſes from an acquaintanc with the nature and faculties of rational beings, o the circumſtances in which they ſhall be placed of the objects that ſhall be preſented to them, an of the influence which their circumſtances and objects muſt have on their actions.

(2.) MOLINA, John, a Spaniſh hiſtorian, autho of *Cronica antiqua d' Aragon*, publiſhed at Valencia in 1524, in folio; and of *De las Caſas memorables d' Eſpagna*, in folio, publiſhed in Alcala.

(3.) MOLINA, Lewis, a Spaniſh lawyer, who wa employed by Philip II. king of Spain in the councils of the Indies and of Caſtile. He publiſhed learned treatiſe on the entails of the ancient eſtate of the Spaniſh nobility, entitled, *De Hiſpanorum Primogenitorum Origini et Natura;* 1603, in folio

MOLINÆUS. See MOULIN.

MOLINGES, a town of France, in the dep. o the Jura; 4½ miles SW. of St Claude, and 11 SE of Orgelet.

MOLINISTS, in eccleſiaſtical hiſtory, a ſect i the Romiſh church, who follow the doctrine an ſentiments of Molina, relating to ſufficient and efficacious grace. See MOLINA, N° 1.

MOLINO, a town of Naples, in Abruzzo Ultra; 13 miles SSE. of Aquila.

MOLINOS, Michael, a Spaniſh prieſt, born i the dioceſe of Saragoſſa in 1627. He entered into prieſt's orders, but never held any benefice. H was a man of ſenſe and learning, and his life wa examplary; though he practiſed no auſterities, bu gave himſelf up to contemplation and myſtical devotion. He wrote a book entitled, *Il Guida Spirituale*, containing his peculiar notions, which wa much read in Italy and Spain. His followers ar called QUIETISTS; becauſe his chief tenet was that men ought to annihilate themſelves to be united to God, and afterwards remain in *quietne* of mind, without being concerned about wha may happen to the body. He was taken up i 1687; and his 68 propoſitions were examined b the pope and inquiſitors, who decreed that hi doctrine was falſe and pernicious; that his book ſhould be burnt; and that he ſhould recant his errors publicly in the Dominicans church. Thus he was condemned to perpetual impriſonment, in his 60th year, for doctrines which he had been ſpreading 22 years before. He died in priſon in 1692.

MOLINOSISTS, or **QUIETISTS**, a ſect among the Romaniſts, who adhere to the doctrine of MOLINOS. See QUIETISTS.

(1.) **MOLISE**, a province or county of Naples, bounded on the N. by Abruzzo Citra, E. by Capitanata, S. by Lavora, and W. by the States of the Church; about 30 miles long and 28 broad. It is fertile in corn, wine, ſaffron, ſilk, &c. Campo Baſſo is the capital.

(2.) **Moliſe**, a town in the above county (N° 1), 48 miles NNE. of Naples, and 95 ESE. of Rome.

MOLK. See MELCK.

(1.) **MOLL**, Herman, a celebrated Engliſh geographer, who publiſhed very accurate maps, which are ſtill eſteemed. He died in 1732.

(2.) **Moll**, a town of France, in the department of the Two Nethes, and ci-devant province of Auſtrian Brabant; 10 miles E. of Herenthals.

(3.) **Moll**, a river of Germany, which riſes in Saltzburg, and ſoon after enters Upper Carinthia, paſſes Welach, and runs into the Drave near Saxenburg.

MOLLE, a town of Norway, in Drontheim.

MOLLEN, a town of Saxony, 6 miles S. of Lubec.

MOLLENBECK, a town of Germany, in the circle of Weſtphalia, and county of Schauenburg.

(1.) **MOLLER**, Daniel William, a celebrated traveller, and profeſſor of hiſtory and metaphyſics at Altdorf, who wrote ſeveral eſteemed works. He died at Altdorf in 1712.

(2.) **Moller**, John, a learned author, born at Flenſbourg in Sleſwick, in 1661. He wrote ſeveral ingenious treatiſes on philoſophical ſubjects.

MOLLERSTORF, a town of Germany, in Auſtria, 4 miles ENE. of Baden.

MOLLERUSA, a town of Spain, in Catalonia.

MOLLEVILLE, a town of France, in the dep. of the Lower Seine, 12 miles NNE. of Caudebec.

* **MOLLIENT.** *adj.* [*molliens*, Lat.] Softening.

* **MOLLIFIABLE.** *adj.* [from *mollify*.] That may be ſoftened.

* **MOLLIFICATION.** *n. ſ.* [from *mollify*.] 1. The act of mollifying or ſoftening.—For induration or *mollification*, it is to be inquired what will make metals harder and harder, and what will make them ſofter and ſofter. *Bacon.* 2. Pacification; mitigation.—Some *mollification*, ſweet lady. *Shak.*

* **MOLLIFIER.** *n. ſ.* [from *mollify*.] 1. That which ſoftens; that which appeaſes.—The root hath a tender, dainty heat; which, when it cometh above ground to the ſun and air, vaniſheth; for it is a great *mollifier*. *Bacon.* 2. He that pacifies or mitigates.

* *To* **MOLLIFY.** *v. a.* [*mollio*, Lat. *mollir*, Fr.] 1. To ſoften; to make ſoft. 2. To aſſuage.—Neither herb, nor *mollifying* plaſter, reſtored them to health. *Wiſd.* xvi. 12.—Sores have not been cloſed, neither bound up, neither *mollified* with ointment. *Iſaiah* i. 6. 3. To appeaſe; to pacify; to quiet.—Thinking her ſilent imaginations began to work upon ſomewhat, to *mollify* them, as the nature of muſick is to do, I took up my harp. *Sidn.*

He brought them to theſe ſavage parts,
And with ſweet ſcience *mollify'd* their ſtubborn hearts. *Shak.*

—The crone, on the wedding night, finding the knight's averſion, ſpeaks a good word for herſelf, in hope to *mollify* the ſullen bridegroom. *Dryden.* 4. To qualify; to leſſen any thing harſh or burdenſome.—They would, by yielding to ſome things, when they refuſed others, ſooner prevail with the houſes to *mollify* their demands than at firſt to reform them. *Clarendon.*—Cowley thus paints Goliah:

The valley, now, this monſter ſeem'd to fill,
And we, methought, look'd up to him from our hill;

where the two words, ſeem'd and methought, have *mollified* the figure. *Dryden.*

MOLLIS, a town of Switzerland, in the canton of Glarus; 2 miles N. of Glarus.

MOLLOY, Charles, Eſq. deſcended from a good family in Ireland, was born in Dublin, and educated at Trinity college, of which he became a fellow. At his coming to England he entered of the Middle Temple, and is ſaid to have had a very conſiderable hand in a periodical paper called *Fog's Journal;* and to have been almoſt the ſole author of another well-known paper, entitled, *Common Senſe*. Theſe papers give teſtimony of ſtrong abilities, great depth of underſtanding, and clearneſs of reaſoning. He had large offers made him to write in defence of Sir Robert Walpole, but rejected them; notwithſtanding which, at the change of the miniſtry in 1742, he was entirely neglected. But having married a lady of fortune, he treated the ingratitude of his patriotic friends with the contempt it deſerved. He alſo wrote 3 dramatic pieces, viz. The Perplexed Couple; The Coquet; and, The Half-pay Officers; none of which met with much ſucceſs. He died 16th July 1767.

MOLLUGO, AFRICAN CHICKWEED, a genus of the trigynia order, belonging to the triandria claſs of plants; and in the natural method ranking under the 22d order, *Caryophylleæ*. The calyx is pentaphyllous; there is no corolla; the capſule is trilocular and trivalved. Its characters are theſe: The empalement of the flower is compoſed of 5 oblong ſmall leaves, coloured on their inſides, and permanent; the flower has 5 oval petals ſhorter than the empalement, and 3 briſtly ſtamina, which ſtand near the ſtyle, terminated by ſingle ſummits; it has an oval germen, having 3 furrows, ſupporting 3 very ſhort ſtyles; the germen becomes an oval capſule with 3 cells, filled with ſmall kidney-ſhaped ſeeds. There are ſeveral ſpecies, few of which are admitted into gardens. Miller reckons 2, and Linnæus 5 ſpecies. This plant is ſaid to have an aperitive virtue.

MOLLUSCA, in zoology, the 2d genus of vermes or worms. Theſe are ſimple naked animals, not included in a ſhell, but furniſhed with limbs, and comprehend 18 ſubordinate genera, and 110 ſpecies.

MOLMASECA, a town of Spain, in Leon.

MOLMUTIN laws, in ancient Britiſh hiſtory, the laws of *Dunwalla Molmutius*, the 16th king of the Britons. They are ſaid to have been in uſe till the Norman conqueſt.

MOLNPATTY, a town of Ceylon.

MOLO, a philoſopher of Rhodes, called alſo *Apollonius*. Some are of opinion that Apollonius and Molo were different perſons, both natives of Alabanda, and diſciples of Menecles. They both viſited Rhodes, and there opened a ſchool; but Molo came ſome time after Apollonius. Molo had Cicero and J. Cæſar among his pupils.

MOLOCH, or Molech, [מלך, Heb. *i. e.* King.] a falſe god of the Ammonites, who dedicated their children to him, by making them "paſs through the fire," as the ſcriptures expreſs it. There are various opinions concerning this method of conſecration. Some think, the children leaped over a fire ſacred to Moloch; others, that they paſſed between two fires; but the moſt probable opinion is, that they were really burnt in the fire, as ſacrifices to this god. For, although it was uſual among the pagans to luſtrate or purify with fire, yet it is expreſsly ſaid, that the inhabitants of Sepharvaim burnt their children in the fire to Anamelech and Adramelech; deities ſimilar to Moloch of the Ammonites. Moſes, in ſeveral places, forbids the Iſraelites to dedicate their children to this god as the Ammonites did, and threatens utter extirpation to ſuch as were guilty of this abominable idolatry. The Hebrews were, however, much addicted to this barbarous ſuperſtition. Amos, and after him St Stephen, reproaches them with having carried along with them into the wilderneſs the tabernacle of their god Moloch. Solomon built a temple to Moloch upon the mount of Olives; and Manaſſeh, long after, imitated his impiety, by making his ſon paſs through the fire in honour of Moloch. It was chiefly in the valley of Tophet and Hinnom, E. of Jeruſalem, that the Iſraelites paid their idolatrous worſhip to this falſe god. (See Ben-Hinnom, and Gehenna.) Some mythologiſts make Moloch the ſame with Saturn, to whom human ſacrifices were offered; others the ſun. Moloch was likewiſe called *Milcom*, as appears from 1 Kings xi. 5, 7, 33.

MOLOCHI, a town of Naples, in Calabria Ultra, 3 miles NE. of Oppido.

MOLODIVE, a town of Ceylon.

MOLOGA, a town and river of Ruſſia, in Jaroſlaw. The river riſes near Bezerzk, and joins the Volga, at the town.

(1.) * **MOLOSSES.** Molasses. *n. ſ.* [*melazzo*, Italian.] Treacle; the ſpume or ſcum of the juice of the ſugar cane.

(2.) Molosses, or Molasses, are that groſs fluid matter remaining of ſugar after refining, and which no boiling will bring to a conſiſtence more ſolid than that of ſyrup; hence alſo called *ſyrup of ſugar*. Properly, moloſſes are only the ſediment of one kind of ſugar called *chypre*, or brown ſugar, which is the refuſe of other ſugars not to be whitened or reduced into loaves. Moloſſes are much uſed in Holland for the preparation of tobacco, and alſo among poor people inſtead of ſugar. There is a kind of brandy or ſpirit made of moloſſes; but by ſome held exceedingly unwholeſome. See § 4.

(3.) Molosses, Artificial. There has been found a method of making moloſſes from apples, without the addition of ſugar. The apple that ſucceeds beſt in this operation is a ſummer ſweeting of a middle ſize, pleaſant to the taſte, and ſo full of juice, that 7 buſhels will yield a barrel of cyder. The method of making it is this: The apples are to be ground and preſſed; then the juice is to be boiled in a large copper, till three quarters of it be evaporated; this will be done with a moderate fire in about ſix hours, with the quantity of juice above mentioned: by this time it will be of the conſiſtence and taſte, as well as of the colour of moloſſes. Theſe new moloſſes ſerve all the purpoſes of the common kind, and are of great uſe in preſerving cyder. Two quarts of it, put into a barrel of racked cyder, will preſerve it, and give it an agreeable colour. The invention of this kind was owing to Mr Chandler of Woodſtock in New England, who, living at a diſtance from the ſea, and where the common moloſſes were very dear and ſcarce, provided this for the ſupply of his own family, and ſoon made it the practice among people of the neighbourhood. It is to be obſerved, that this ſort of apple, the ſweeting, is of great uſe in making cyder, one of the very beſt kinds we know being made of it. The people in New England alſo feed their hogs with the fallings of their orchards of theſe apples; in conſequence of which, their pork is the fineſt in the world.

(4.) Molosses Spirit; a very clean and pure ſpirit, much uſed in England, and made from moloſſes or common treacle diſſolved in water, and fermented in the ſame manner as malt, or the common malt ſpirit. See Distillation, § III—V. Moloſſes ſpirit coming dearer than that of malt, it is frequently met with baſely adulterated with a mixture of that ſpirit, and indeed ſeldom is to be bought without ſome daſh of it. Many have a way of mixing malt in the fermenting liquor: by this the produce of the whole is greatly increaſed, and the maker may aſſure the buyer that the ſpirit is pure as it ran from the worm. In moſt of the nice caſes in our compound diſtillery, the moloſſes ſpirit ſupplies the place of a pure and clean ſpirit. Cinnamon, citron, and other fine cordial waters, are made with it; for the malt ſpirit would impart to theſe a very diſagreeable flavour. Moloſſes ſpirit gives a yellow ſtain to the hands, or other ſubſtances dipped into it; and may therefore be of uſe in dyeing. The vinegar-makers may alſo find uſe for it; but the moſt advantageous of all its uſes is to the diſtiller; a quantity of it added to new treacle for fermentation is of great uſe in the proceſs, and increaſes very conſiderably the quantity of ſpirit; but the proportion, in regard to the new matter, muſt not be too great.

MOLOSSI, a people of Epirus, who inhabited that part of the country called Molossia.

MOLOSSIA, or **MOLOSIS**, a territory of Epirus, ſo named from king Molossus, ſon of Pyrrhus and Andromache. This country had the bay of Ambracia on the S. and the country of the Perrhæbeans on the E. The dogs of the place were famous, and received the name of *Moloſſi* among the Romans. Dodona was the capital of the country, though others reckon it the chief city of Theſprotia.

(1.) MOLOSSUS, in the Greek and Latin poetry, a foot conſiſting of three long ſyllables. As *audiri*, *cantabant*, *virtutem*. It takes its name either from a dance in uſe among the MOLOSSI, or from the temple of Jupiter Moloſſus, where odes were ſung, in which this foot had a great ſhare; or elſe becauſe the march of the Moloſſi, when they went to the combat, was compoſed of theſe feet, or had the cadence thereof. The ſame foot was alſo called among the ancients, *Vertumnus*, *extenſipes*, *hippius*, *&c. canius*.

(2.) MOLOSSUS. See MOLOSSI.

(1.) MOLSA, Francis Maria, an eminent poet of the 16th century, born at Modena. He gained ſo great a reputation by his Latin and Italian poetry, that, as Paul Jovius tells us, "for 30 years together the patrons of wit at Rome ſtrove to promote him." If he had behaved with any prudence, he might eaſily have raiſed himſelf in the world; but he managed ſo ill that his friends found it impoſſible to ſerve him.—He was entirely debauched, and devoid of all decency. He died, in 1544, of the French diſeaſe. He was a great orator as well as a great poet. Having obſerved the people of Rome highly incenſed againſt Laurence de Medicis, who had ſtruck off the heads of a great number of ancient ſtatues, he accuſed him of that action, and (ſays Jovius) made ſo lively an oration upon it, that he perfectly overwhelmed him with confuſion: and it was believed that Laurence, to efface the infamy, reſolved to reſtore Florence to its liberty, by aſſaſſinating Alexander de Medicis. See MEDICIS, No 11, and 12.

(2, 3.) MOLSA, Tarquinia, daughter of Camillo Molſa, knight of the order of St James of Spain, and grand-daughter of the poet (N° 1.) was a moſt accompliſhed lady, wit, learning, beauty, and virtue, all uniting in her in a moſt extraordinary degree. Her father early obſerving the excellence of her genius, procured her the beſt maſters in every branch of literature and ſcience. Lazarus Labadini taught her polite literature; and her Latin compoſitions ſhow that ſhe profited by his inſtructions. She ſtudied Ariſtotle under Camillo Corcapani; Anthony Guarini taught her the doctrine of the ſphere; ſhe learned poetry under Francis Patricius; Greek, logic, and philoſophy under P. Latoni. The rabbi Abraham taught her the Hebrew language; and John Marier Barbier inſtructed her in the Tuſcan, in which ſhe wrote a great number of elegant verſes, letters, and other pieces, which are ſtill held in eſteem. She alſo tranſlated ſeveral pieces from Greek and Latin in an elegant manner. She attained the higheſt degree of perfection in muſic; and played upon the violin and lute, and ſung to them in a moſt exquiſite taſte. She inſtituted a choir of ladies, over which ſhe preſided. She was in high reputation at the court of Alphonſus II. duke of Ferrara, a prince of great taſte and judgment, who paid her high compliments. But the moſt authentic teſtimony of her merit, ſhe received from Rome. By a decree of the ſenate, ſhe was honoured with the title of *Singular*, and the rights of Roman citizens were granted to her and the whole family. She was married, but loſing her huſband without having any children, would never conſent to be married again, although very young. She gave ſuch lively tokens of her grief, that Patricius compares her to ARTEMISIA.

MOLSEN, a town of Saxony, in Thuringia.

MOLSHEIM, a town of France in the dep. of the Lower Rhine, on the Bruch, 10 miles WSW. of Straſburg, and 228 E. of Paris. Lon. 7. 35. E. Lat. 48. 33. N.

* MOLTEN. part. paſſ. from *melt*.—Braſs is *molten* out of ſtone. *Job*, xxviii. 2.—In a ſmall furnace made of a temperate heat; let the heat be ſuch as may keep the metal *molten*, and no more. *Bacon*.—

> Love's myſtick form the artizans of Greece
> In wounded ſtone, or *molten* gold expreſs.
> *Prior*.

MOLTEN GREASE. See FARRIERY, *Part*. III. *Sect*. XIII.

MOLTIFAO, a town of France in the iſland and dep. of Corſica; 15 miles N. of Corte.

MOLUCCA ISLANDS, lie in the Eaſt Indian ſea under the line. There are 6 principal iſlands; viz. AMBOYNA, Ternate, Tydor, Machian, Motyr, and Bachian. The largeſt is hardly 30 miles in circumference. They produce neither corn, rice, nor cattle, except goats; but have oranges, lemons, and other fruits; and are moſt remarkable for ſpices, eſpecially cloves. They have large ſnakes, which are not venomous, and very dangerous land crocodiles. They have three kings; but the Dutch exclude all other European nations, being jealous of their ſpice-trade. The religion is idolatry; but there are many Mahometans. They were diſcovered by the Portugueſe in 1511, who ſettled upon the coaſt; but the Dutch drove them away, and are now maſters of all theſe iſlands'. See AMBOYNA, § 3—5.

MOLUCCELLA, or } MOLUCCA BAUM, in
MOLUCILLA } botany; a genus of the gymnoſpermia order, belonging to the didynamia claſs of plants; in the natural method ranking under the 42d order, *Verticillatæ*. The calyx is campanulated, gradually widening larger than the corolla, and ſpinous.

MOLVIUS PONS. See MILVIUS, N° 1.

MOLWITZ, a town of Sileſia, in the province of Grotſka, remarkable for a battle gained by the Pruſſians over the Auſtrians in 1741. Lon. 16. 45. E. Lat. 50. 26. N.

(1.) * MOLY. *n. ſ.* [*moly*, Latin: *moly*, Fr.] A plant.—*Moly*, or wild garlick, is of ſeveral ſorts; as the great *moly* of Homer, the Indian *moly*, the *moly* of Hungary, ſerpent's *moly*, the yellow *moly*. Spaniſh purple *moly*, Spaniſh ſilver capped *moly*, Dioſcorides's *moly*, the ſweet *moly* of Montpelier: the roots are tender, and muſt be carefully defended from froſts: as for the time of their flowering, the *moly* of Homer flowers in May, and continues till July, and ſo do all the reſt except the laſt, which is late in September: they are hardy, and will thrive in any ſoil. *Mortimer*.—

> The ſovereign plant he drew,
> And ſhew'd its nature, and its wond'rous pow'r,
> Black was the root, but milky white the flower;
> *Moly* the name.
> *Pope*.

(2.) **Moly**, has been rendered famous by Homer; and hence has been much inquired into, as to its true ſenſe, by the botaniſts of almoſt all times. The old interpreters of Homer explain this word by the *wild rue*; and the only reaſon for this is, that at ſome time, probably long after the days of Homer, the people of Cappadocia called the wild rue *moly*. But this plant is wholly different from the moly of Homer, which Theophraſtus affirms grew in his time in Arcadia in great plenty, and had a round bulbous root like an onion, and long and graſſy leaves like the ſquill. On the whole, the moly of Homer ſeems to have been a ſpecies of **Allium** or garlic.

MOLYBDAT. See **Chemistry**, and **Mineralogy**, *Part* II, *Chap* VII, *Order* VIII, *Gen.* III, *Sp.* 7; and *Part* III; *Chap.* IV, § VIII, 7.

MOLYBDENA, or } *n. ſ.* in metallurgy, a metal often confounded with
MOLYBDENUM, } plumbago or black lead, but poſſeſſed of very different properties. See **Chemistry**, *Index*; **Metallurgy**, *Part* I, *Sect.* I; and **Mineralogy**, *Part* II, *Chap.* VII, *Claſs* IV, *Ord.* XVIII: alſo, *Part* III, *Chap.* IV, § XVIII; and *Chap.* V, § 18. Molybdenum is found ſometimes along with tin ores, that are attracted by the magnet, among copperiſh pyrites; and alſo with wolfram. Some mineralogiſts ſay it has been found in France, Spain and Iceland; but Dr Thomſon does not mention theſe places.

MOLYBDIA, in natural hiſtory, a genus of cryſtals of a cubic form, or compoſed of ſix ſides, at right angles, like a dye.

MOLYBDIC Acid. See **Chemistry**, *Index*; and **Mineralogy**, *Part* III, *Chap.* IV, § XVIII.

(1.) **MOLYN**, Peter, ſurnamed *Tempeſta* and *Mulier*, an eminent painter, but a bad man, born at Haerlem in 1637. He was the diſciple of Snyders, whoſe manner of painting he at firſt imitated. But his genius led him to the ſtudy of diſmal ſubjects; and as he excelled in painting tempeſts, ſtorms, and ſhipwrecks, he was called *Tempeſta*. His pictures are very rare, and held in great eſtimation. The name of *Pietro Mulier*, or *de Mulieribus*, was given him on account of having cauſed his wife to be aſſaſſinated, in order to marry a young lady of Genoa. But this villanous tranſaction being diſcovered, he was ſeized, impriſoned, and capitally condemned. However, his great merit as an artiſt occaſioned a mitigation of the ſentence; but he was ſtill detained in priſon, where he followed his profeſſion, and would have continued there in all probability for life, had he not eſcaped to Placentia, when Lewis XIV. bombarded the city of Genoa, after he had been in confinement 16 years. To this artiſt are attributed ſeveral very neat prints, executed with the graver only, in a ſtyle greatly reſembling that of John Vander Velde. They conſiſt chiefly of candle-light pieces and dark ſubjects.

(2.) **Molyn**, Peter, *the elder*, a native of Holland, and a painter; but not ſo eminent as Tempeſta. Some ſuppoſe the prints above mentioned ought to be aſcribed to the latter; as, though very neatly executed, they are laboured heavy performances, and not equal in any degree to what one might expect from the hand of an artiſt of ſo much repute as Tempeſta.

(1.) **MOLYNEUX**, Dr William, an excellent mathematician and aſtronomer, born at Dublin in 1656. When he left the univerſity of that city, he carried with him a teſtimonial expreſſing in the ſtrongeſt terms the higheſt opinion of his genius, and the probity of his manners. In 1675, he entered in the Middle Temple, where he ſpent 3 years in the ſtudy of the law; but the bent of his genius lay ſtrongly toward mathematics and philoſophy; and even at the univerſity he fell into the methods of Lord Bacon. Returning to Ireland in June 1678, he married Lucy the daughter of Sir William Domvile, attorney-general. Being maſter of an eaſy fortune, he continued to proſecute natural and experimental philoſophy, particularly aſtronomy; and about 1681 he commenced a literary correſpondence with Flamſtead the king's aſtronomer, which he kept up for ſeveral years. In 1683, he formed a deſign of erecting a philoſophical ſociety at Dublin, in imitation of the Royal Society at London; and, by the countenance of Sir William Petty, who accepted the office of preſident, they began a weekly meeting that year, when our author was appointed their firſt ſecretary. Mr Molyneux's reputation for learning recommended him, in 1684, to the favour of the duke of Ormond, then lord lieutenant of Ireland; by whoſe influence he was appointed, that year, with Sir William Robinſon, ſurveyor general of the king's buildings, and chief engineer. In 1686, he was ſent abroad to view the principal fortreſſes in Flanders. He travelled, with Lord Mountjoy, through that country, Holland, part of Germany, and France. Upon his return from Paris to London, in April 1689, he publiſhed his *Sciothericum Teleſcopium*, containing a deſcription of the ſtructure and uſe of a teleſcopical dial invented by him. He ſpent two years with his family at Cheſter, where he wrote his *Dioptrics*, dedicated to the Royal Society. Here he loſt his lady, who died ſoon after ſhe had brought him a ſon. As ſoon as tranquillity was ſettled in Ireland, he returned home; and, upon the convening of a new parliament in 1692, was choſen one of the repreſentatives for Dublin. In 1695, he was elected for the univerſity, whom he repreſented to the end of his life: and that learned body conferred on him the degree of L. L. D. He was likewiſe nominated a commiſſioner for the forfeited eſtates, with a ſalary of 500l. a year; but declined it as an invidious office. In 1698, he publiſhed, "The Caſe of Ireland ſtated, in relation to its being bound by Acts of Parliament made in England." Among thoſe with whom he maintained correſpondence and friendſhip, Mr Locke was in a particular manner dear to him, as appears from their letters. In 1698, which was the laſt year of his life, he went to England, to viſit that great man; and ſoon after his return to Ireland was ſeized with a fit of the ſtone, of which he died. He publiſhed alſo ſeveral pieces in the Philoſophical Tranſactions.

(2, 3.) **Molyneux**, Samuel, ſon of the preceding, was born at Cheſter in July 1689; and educated with great care by his father, according to the plan laid down by Locke. When his father died, he fell under the management of his uncle, Dr Thomas Molyneux, an excellent ſcholar and phyſician at Dublin, and alſo an intimate friend of Mr Locke; who executed his truſt ſo well, that Mr Molyneux became a moſt accompliſhed gentleman, and was made ſecretary to the prince of Wales, afterwards K. George II. Aſtronomy being his favourite ſtudy, he was employed in 1723, 1724, and 1725, in perfecting the method of making teleſcopes; one of which, of his own making, he had preſented to John V. king of Portugal. But being appointed a commiſſioner of the admiralty, he became ſo engaged in public affairs, that he had not leiſure to purſue theſe inquiries farther; and gave his papers to Dr Robert Smith, profeſſor of aſtronomy at Cambridge, whom he invited to make uſe of his houſe and apparatus of inſtruments, to finiſh what he had left imperfect. Mr Molyneux dying ſoon after, Dr Smith loſt the opportunity; yet, ſupplying what was wanting from Mr Huygens and others, he publiſhed the whole in his "Complete Treatiſe of Optics."

(4.) Molyneux, Sir William, a brave Engliſh officer in the reign of Henry VIII, who diſplayed great heroiſm at the battle of Flodden. His advice to his ſon on his death-bed merits recording: "Let the under-wood grow; the tenants are the ſupport of a family, and the commonalty are the ſtrength of a kingdom. Improve this fairly, but force not violently either your bounds or rents."

MOMAPANE, a lake of Canada, 56 leagues N. of Quebec.

(1.) MOMBACA, (1.) MOMBASO, (1.) MOMBAZA, or Monbaza, a country of Africa in Zanguebar, ſubject to the Portugueſe; whence they export ſlaves, gold, ivory, rice, fleſh, and other proviſions, to Braſil. The king of this country, after profeſſing to be a Chriſtian, had a quarrel with the Portugueſe governor, took the caſtle by aſſault, turned Mahometan, and murdered all the Chriſtians, in 1631; but in 1729, the Portugueſe became maſters of the territory again.

(2, 3.) MOMBAZA, or Monbaza, a town of Africa, in an iſland of the ſame name, with a caſtle and a fort: ſeated on the E. coaſt, oppoſite to the above country, 70 miles S. of Melinda, and ſubject to Portugal. Lon. 48. 0. W. Lat. 44. 0. N.

MOMBEL, a town of the French republic, in the department of Mont Blanc, and late duchy of Savoy, 10 miles WNW. of Chambery.

MOMBRITIUS, Moninus, an Italian author, born in Milan. He wrote the *Lives of the Saints*, a curious work, which is now very ſcarce, and much ſought after. It was printed about 1479.

* MOME. *n. ſ.* A dull ſtupid blockhead; a ſtock, a poſt: this owes its original to the French word *momon*, which ſignifies the gaming at dice in maſquerade, the rule of which is, that a ſtrict ſilence is to be obſerved; whatſoever ſum one ſtakes another covers, but not a word is to be ſpoken; hence alſo comes our word *mum* for ſilence. *Hanmer.*—

Mome, malthorſe, capon, coxcomb, idiot, patch!
Either get thee from the door, or ſit down at the hatch. *Shak.*

MOMEGASTRO, a town of Spain, in Arragon; 12 miles E. of Balgaſtro.

* MOMENT. *n. ſ.* [*moment*, Fr. *momentum*, Lat.] 1. Conſequence; importance; weight; value.—We do not find that our Saviour reproved them of error, for thinking the judgment of the ſcribes to be worth the objecting, for eſteeming it to be of any *moment* or value in matters concerning God. *Hooker.*—I have ſeen her die twenty times upon far poorer *moment*. *Shak. Ant. and Cleop.*—What towns of any *moment* but we have? *Shak.*—It is an abſtruſe ſpeculation, but alſo of far leſs *moment* and conſequence to us than the others. *Bentley.* 2. Force; impulſive weight; actuating power.—The place of publick prayer is a circumſtance in the outward form, which hath *moment* to help devotion. *Hooker.*—

Look they as they were built to ſhake the world?
Or be a *moment* to our enterprize? *Ben Jonſon.*

Touch with lighteſt *moment* of impulſe
His free-will. *Milton's Par. Loſt.*

—He is a capable judge; is determined only by the *moments* of truth, and ſo retracts his paſt errors. *Norris.* 3. An indiviſible particle of time.—If I would go to hell for an eternal *moment*, or ſo, I could be knighted. *Shak. Merry Wives.*—

From this *moment*
The very firſtlings of my heart ſhall be
The firſtlings of my hand. *Shak. Macbeth.*

—The imaginary reaſoning of brutes is not a diſtinct reaſoning, but performed in a phyſical *moment*. *Hale.*—

While I a *moment* name, a *moment's* paſt;
I'm nearer death in this verſe than the laſt. *Young.*

Yet thus receiving and returning bliſs
In this great *moment*, in this golden now. *Prior.*

* MOMENTALLY. *adv.* [from *momentum*, Latin.] For a moment.—Air, but *momentally* remaining in our bodies, hath no proportionable ſpace for its converſion, only of length enough to refrigerate the heart. *Brown's Vulg. Errours.*

* MOMENTANEOUS. } *adj.* [*momentanée*, Fr.
* MOMENTANY. } *momentaneus*, Latin.]

Laſting but a moment.—*Momentany* benefits, when the hurt which they draw after them is unſpeakable, are not at all to be reſpected. *Hooker.*—Flame above is durable and conſiſtent; but with us it is a ſtranger and *momentany*. *Bacon's Nat. Hiſtory.*—

But ſhe, ſwift as the *momentany* wing
Of light'ning, or the words he ſpoke, left hell. *Craſhaw.*

* MOMENTARY. *adj.* [from *moment*.] Laſting for a moment; done in a moment.—

Momentary as a ſound,
Swift as a ſhadow, ſhort as any dream. *Shak.*

Swift as thought the flitting ſhade
Thro' air his *momentary* journey made. *Dryd.*

—Onions, garlick, pepper, ſalt and vinegar, taken in great quantities, excite a *momentary* heat and fever. *Arbuthnot.*

* MOMENTOUS. *adj.* [from *momentum*, Lat.] Important; weighty; of conſequence.—

Great Anne, weighing th' events of war
Momentous. *Philips.*

—If any falſe ſtep be made in the more *momentous* concerns of life, the whole ſcheme of ambitious deſigns is broken. *Addiſon.*—It would be a very weak thing to give up ſo *momentous* a point as this, only becauſe it has been conteſted. *Waterl.*

MOMENTUM, in mechanics, ſignifies the ſame with impetus, or the quantity of motion in a moving body; which is always equal to the quantity of matter multiplied into the velocity; or, which is the ſame thing, it may be conſidered as a rectangle under the quantity of matter and velocity. See MECHANICS, *Part* I, *Sect.* VI.

MOMFLOT. See MANFALOUT.

MOMIANO, a town in Iſtria; 7½ miles S. of Capo.

* MOMMERY. *n. ſ.* [or *mummery*, from *mummer*, *momerie*, Fr.] An entertainment in which maſkers play frolicks. See MOME.—

—Life fled from us like an idle dream.
A ſhew of *mommery* without a meaning. *Rowe.*

MOMORANA, a caſtle of Maritime Auſtria, in Iſtria, near Cauran.

MOMORDICA, MALE BALSAM APPLE, a genus of the ſyngeneſia order, belonging to the monoecia claſs of plants; and in the natural method ranking under the 34th order, *Cucurbitaceæ*. The male calyx is quinquefid; the corolla ſexpartite; the filaments are three in number. The female calyx is trifid; the corolla quinquepartite; the ſtyle trifid; the fruit is an apple parting aſunder with a ſpring. The moſt remarkable ſpecies are,

1. MOMORDICA BALSAMINA, the male balſam apple, is a native of Aſia, and has a trailing ſtalk like the melon, with ſmooth leaves, cut into ſeveral ſegments, and ſpread open like a hand. The fruit is oval, ending in acute points, having ſeveral deep angles, with ſharp tubercles placed on their edges. It changes to a red or purpliſh colour when ripe, opening with an elaſticity, and throwing out its ſeeds. This ſpecies is famous in Syria for curing wounds. The natives cut open the unripe fruit, and infuſe it in ſweet oil, which they expoſe to the ſun for ſome days, until it becomes red; and then preſent it for uſe. Dropped on cotton, and applied to a freſh wound, the Syrians reckon this oil the beſt vulnerary next to balſam of Mecca. It often cures large wounds in three days. The leaves and ſtems are uſed for arbours or bowers.

2. MOMORDICA ELATERIUM, wild or ſpurting cucumber, has a large fleſhy root, ſomewhat like briony, whence come forth every ſpring ſeveral thick, rough, trailing ſtalks, dividing into many branches, and extending every way 2 or 3 feet; theſe are garniſhed with thick, rough, almoſt heart-ſhaped leaves, of a grey colour, ſtanding upon long foot-ſtalks. The flowers come out from the wings of the ſtalks: theſe are male and female, growing at different places on the ſame plant like thoſe of the common cucumber: but they are much leſs, of a pale yellow colour, with a greeniſh bottom; the male flowers ſtand upon thick, ſhort, foot-ſtalks, but the female flowers ſit upon the young fruit; which, after the flower is faded, grows of an oval form, an inch and a half long, ſwelling like a cucumber, of a grey colour like the leaves, and covered over with ſhort prickles. The elaterium of the ſhops is the fruit, or rather the inſpiſſated fæcula, of the juice of the unripe fruit of this ſpecies. It is uſually fe from Spain and the ſouthren parts of Franc where the plant is common, in ſmall, flat, whitiſ lumps, or cakes, that are dry, and break eaſily between the fingers. It is of an acrid, nauſeou bitter taſte, and has a ſtrong offenſive ſmell wh newly made; but theſe, as well as its other properties, it loſes after being kept for ſome time. I is a very violent purge and vomit, and is now ſe dom uſed. From the property which the pla has of throwing out its ſeeds, with a violent forc upon being *touched*, it has ſometimes been calle *Noli me tangere.*

MOMUS, in the mythology, the god of railler or the jeſter of the celeſtial aſſembly, who rid culed both gods and men. Being choſen by Vu can, Neptune, and Minerva, to give his judgme concerning their works, he blamed them all: Ne tune for not making his bull with horns before h eyes, in order that he might give a ſurer blow Minerva for building a houſe that could not b removed in caſe of bad neighbours; and Vulca for making a man without a window in his breaſ that his treacheries might be ſeen. For his fre reflections upon the gods, Momus was driv from heaven. He is generally repreſented raiſin a maſk from his face, and holding a ſmall figu in his hand.

(1.) MONA, in ancient geography, an iſland i the ſea, between Britain and Ireland, deſcribed b Cæſar, as ſituated in the mid paſſage betwee both iſlands, and ſtretching out in length from S to N.: called *Monaæda* by Ptolemy; MONAPI or *Monabia*, by Pliny: ſuppoſed to be the Iſle o MAN.

(2.) MONA, another iſland, between Britain an Ireland, mentioned by Tacitus, more to the S and of greater breadth than the above; ſituate on the coaſt of the Ordovices, and ſeparated b a narrow ſtrait; an ancient ſeat of the Druids now called *Angleſey*. See ANGLESEY.

(3.) MONA, an iſland of the Baltic Sea, SW. o the iſland of Zealand, ſubject to Denmark. Lo 12. 30. E. Lat. 55. 20. N.

(4.) MONA, an ancient name of INCH-COLM.

(5.) MONA, an iſland of the Weſt Indies, between St Domingo and Porto Rico.

(6.) MOAN. See MOEN.

* MONACHAL. *adj.* [*monacal*, Fr. *monachali* Latin; μοναχικος.] Monaſtick; relating to monks or conventual orders.

(1.) * MONACHISM. *n. ſ.* [*monachiſme*, Fr. The ſtate of monks; the monaſtick life.

(2.) MONACHISM. See MONASTERY, § 2; an MONK, § 2.

(1.) MONACO, a late principality of Italy on the coaſt of the Mediterranean, between Nic and Genoa, 5 Italian miles in circuit, whic was annexed to France at the requeſt of its inhabitants, on the 14th Feb. 1793, and include in the department of the maritime Alps. It wa governed for 800 years by its own princes of th family of Grimaldi, the male line of which faile in 1731.

(2.) MONACO, a handſome and ſtrong tow of France in the department of Maritime Alps in the above territory, with a caſtle, citadel, and a good harbour, ſeated on a craggy rock: It wa annexed to France on February 14, 1773, at the requeſt of the people, and included in the department of the Maritime Alps. Lon. 7. 33. E. Lat. 43. 48. N.

(1.) * **MONAD.** } *n. ſ.* [μονας.] An indiviſible
(1.) * **MONADE.** } thing.—Diſunity is the natural property of matter, which of itſelf is nothing but an infinite congeries of phyſical *monads*. *More.*

(2.) MONADE. See LEIBNITZIAN PHILOSOPHY.

MONADELPHIA, [from μονος, *alone* and α-δελφια, a *brotherhood;*] a ſingle brotherhood: the 16th claſs in Linnæus's ſexual ſyſtem. See BOTANY, *Index*.

MONADNICK, or } GREAT, a mountain
(1.) **MONADNOCK**, } of New Hampſhire, in Cheſhire county, 10 miles N. of the Maſſachuſetts line, and 22 E. of the Connecticut. Its top is 3254 feet above the ſea level; its baſe 5 miles in diameter from N. to S. and 3 from E to W.

(2.) MONADNOCK, UPPER, a high mountain of Vermont in Canaan, in the NE. corner.

(1.) **MONAGHAN**, a county of Ireland, ſituated in the province of Ulſter, bounded by Tyrone on the N. Armagh on the E. Cavan and Louth on the S. and Fermanagh on the W. It is a boggy and mountainous tract, but in ſome places is well improved. It contains 170,090 Iriſh plantation acres, 24 pariſhes, five baronies, and one borough; and ſends two members to the imperial parliament. It is about 30 miles long, and 24 broad. The linen-trade is averaged at 104,000 l. yearly.

(2.) MONAGHAN, the capital of the above county, is 62 miles from Dublin. It has ſix fairs. It was anciently called MUINECHAN. An abbey was founded here in a very early age, of which Moelodius the ſon of Aodh was abbot. In 1462, a monaſtery for conventual Franciſcans was erected on the ſite of this abbey, which was granted on the ſuppreſſion of monaſteries to Edward Withe, and a caſtle has been ſince erected on the ſite by Edward Lord Blayney.

MONALLAN, a town of Ireland, in Down.

MONAMY, Peter, a good painter of ſea-pieces, born in Jerſey. He received his firſt rudiments of drawing from a ſign painter; but talents break forth in the homelieſt ſchool. The ſhallow waves that rolled under his window taught young Monamy what his maſter could not teach him, and led him to imitate the turbulence of the ocean. In painter's hall is a large piece by him, painted in 1726. He died at Weſtminſter, in 1749.

MONANDRIA, [from μονος, *alone*, and ανηρ, a *man;*] the firſt claſs in Linnæus's ſexual ſyſtem. See BOTANY, *Index*.

MONANTHIEUL, Henry DE, a French mathematician of the 16th century. He was profeſſor of Mathematics at Paris in 1577, and Dean of the Faculty of Phyſic. He publiſhed a tranſlation of Ariſtotle's Mechanics into Latin, with a commentary.

MONAPIA. See MONA, Nº 1.

(1.) * **MONARCH.** *n. ſ.* [*monarch*, Fr. μοναρχος.] 1. A governor inveſted with abſolute authority; a king.—

I was
A morſel for a *monarch*. *Shak. Ant. and Cleop.*

Your brother kings and *monarchs* of the earth
Do all expect that you ſhould rouſe yourſelf.
Shak.

—The father of a family or nation, that uſes his ſervants like children, and adviſes with them in what concerns the commonweal, and thereby is willingly obeyed by them, is what the ſchools mean by a *monarch. Temple* 2. One ſuperior to the reſt of the ſame kind.—

The *monarch* oak, the patriarch of the trees,
Three centuries he grows, and three he ſtays
Supreme in ſtate, and in three more decays.
Dryden.

One *monarch* wears an open, honeſt face. *Dryd.*
The *monarch* ſavage rends the trembling prey.
Pope's Odyſſey.

3. Preſident.—

Come, thou *monarch* of the vine,
Plumpy Bacchus, with pink eyne. *Shak.*

(2.) MONARCH. See EMPEROR, KING, &c.

* **MONARCHAL.** *adj.* [from *monarch.*] Suiting a monarch; regal; princely; imperial.—

Satan, whom now tranſcendent glory rais'd
Above his fellows with *monarchal* pride,
Conſcious of higheſt worth, unmov'd thus ſpake.
Milton.

* **MONARCHICAL.** *adj.* [*monarchique*, French; μοναρχικος; from *monarch.*] Veſted in a ſingle ruler.—That ſtorks will only live in free ſtates, is a pretty conceit to advance the opinion of popular policies, and from antipathies in nature to diſparage *monarchical* government. *Brown.*—The decretals reſolve all into a *monarchical* power at Rome. *Baker's Reflections on Learning.*

* *To* **MONARCHISE.** *v. n.* [from *monarch.*] To play the king.—

Allowing him a breath, a little ſcene
To *monarchize*, he fear'd, and kill'd with looks.
Shak.

(1.) * **MONARCHY.** *n. ſ.* [*monarchie*, French; μοναρχια.] 1. The government of a ſingle perſon.—While the *monarchy* flouriſhed, theſe wanted not a protector. *Atterbury.* 2. Kingdom; empire.—

What ſcourge for perjury,
Can this dark *monarchy* afford falſe Clarence?
Shak.

This ſmall inheritance
Contenteth me, and 's worth a *monarchy*. *Shak.*

(2.) *A* MONARCHY is a large ſtate governed by one; or a ſtate where the ſupreme power is lodged in the hands of a ſingle perſon. Of the three forms of government, viz. democracy, ariſtocracy, and monarchy, the laſt is the moſt powerful, all the ſinews of government being knit together, and united in the hand of the prince; but then there is imminent danger of his employing that ſtrength to oppreſſive purpoſes. As a democracy is the beſt calculated to direct the end of a law, and an ariſtocracy to invent the means by which that end ſhall be obtained, a monarchy is moſt fit for carrying theſe means into execution.

(3.) MONARCHY, DIFFERENT KINDS OF. Of monarchies ſome are abſolute and deſpotic, where the will of the monarch is uncontroulable; others are limited, where the prince's authority is reſtrained by laws, and part of the ſupreme power lodged in other hands, as in Britain. (See Go-

VERNMENT, § 4.) Some monarchies again are hereditary, where the ſucceſſion devolves immediately from father to ſon; and others are elective, where, on the death of the monarch, his ſucceſſor is appointed by election, as in Poland, before its diſmemberment by thoſe pretended friends of ſocial order Frederic William II. of Pruſſia, and Catharine II. of Ruſſia.

(4.) MONARCHY, UNIVERSAL. The moſt ancient monarchy was that of the Aſſyrians, which was founded ſoon after the deluge. Hiſtorians uſually reckon four grand or almoſt univerſal monarchies or empires, the Aſſyrian, Perſian, Grecian, and Roman. (See EMPIRE, § 2.) Belus is placed at the head of the ſeries of Aſſyrian kings who reigned at Babylon, and is by profane authors eſteemed the founder of it, and by ſome the ſame whom the ſcriptures call NIMROD. The principal Aſſyrian kings after Belus were Ninus, who built Nineveh, and removed the ſeat of empire to it; Semiramis, who, diſguiſing her ſex, took poſſeſſion of the kingdom inſtead of her ſon, and was killed and ſucceeded by her ſon Ninyas; and Sardanapalus, the laſt of the Aſſyrian monarchs. (See ASSYRIA, § 2.) After his death the Aſſyrian empire was ſplit into three ſeparate kingdoms, viz. the Median, Aſſyrian, and Babylonian. Of theſe the BABYLONIAN became the greateſt empire both in riches and extent, under Nabonaſſar, and Nebuchadnezzar. The firſt king of the Median kingdom was Arbaces; and this kingdom laſted till the time of Aſtyges, who was ſubdued and diveſted of his kingdom by Cyrus the Great, who alſo put an end to the Babylonian monarchy. (See BABYLON, MEDIA, and PERSIA.) Cyrus founded the 2d grand monarchy called the *Perſian*, which ſtood upwards of 200 years, from Cyrus, from A M. 3468, to Darius Codomannus, who was conquered by Alexander A. M. 3674. The firſt monarch was Cyrus. 2. Cambyſes, the ſon of Cyrus. 3. Smerdis. 4. Darius, the ſon of Hyſtaſpes, who reigned A. A. C. 521. 5. Xerxes, who reigned A. A. C. 485. 6. Artaxerxes Longimanus, who reigned A. A. C. 464. 7. Xerxes II. 8. Ochus, or Darius Nothus, A. A. C. 424. 9. Artaxerxes Mnemnon, A. A. C. 405. 10. Artaxerxes Ochus, A. A. C. 359. 11. Arſes, A. A. C. 338. 12. Darius Codomannus, A. A. C. 336, who was defeated by Alexander the Great, and deprived of his kingdom and life, about A. A. C. 331, and the dominion of Perſia tranſlated to the Greeks. (See MACEDON, § 13.) The 3 grand monarchy was the Grecian. As Alexander, when he died, did not declare who ſhould ſucceed him, there ſtarted up as many kings as there were commanders. At firſt they governed the provinces that were divided among them under the title of viceroys; but when the family of Alexander the Great was extinct, they took upon them the name of kings. Hence, in proceſs of time, the whole empire of Alexander produced 4 diſtinct kingdoms, viz. 1. The Macedonian; the kings of which, after Alexander, were Antipater, Caſſander, Demetrius Poliorcetes, Seleucus, Nicanor, Meleager, Antigonus Doſon, Philip, and Perſeus, under whom the Macedonian kingdom was reduced to the form of a Roman province. 2. The Aſiatic kingdom, which upon the death of Alexander fell to Antigonus, comprehending the country now called Natolia, together with ſome other regions beyond Mount Taurus. From this kingdom proceeded two leſſer ones, viz. that of Pergamus, whoſe laſt king, Attalus, appointed the Roman people his heir; and Pontus reduced by the Romans into the form of a province, when they had ſubdued the laſt king, Mithridates VII. 3. The Syrian, of whoſe 22 kings the moſt celebrated were, Seleucus Nicator, founder of the kingdom; Antiochus Theos; Antiochus the Great; Antiochus Epiphanes; and Tigranes, who was conquered by the Romans under Pompey; and Syria reduced into the form of a Roman province. 4. The Egyptian, which was formed by the Greeks in Egypt, and flouriſhed near 240 years under 12 kings; the principal of whom were, Ptolemy Lagus, its founder; Ptolemy Philadelphus, founder of the Alexandrian library; and queen Cleopatra, who was overcome by Aguſtus, in conſequence of which Egypt was added to the dominion of the Romans. (See EGYPT, § 12—15.) The 4th grand monarchy was the Roman, whoſe regal ſtate laſted only 244 years, from the building of the city until the royal power was abrogated. The kings of Rome were Romulus, its founder: Numa Pompilius; Tullus Hoſtilius; Ancus Martius; Tarquin I, Servius Tullius; and Tarquin II. who was baniſhed, and with whom terminated the regal power. (See ROME.) But it was not under its kings that Rome became the 4th grand monarchy. It was long after the regal power was aboliſhed, when the Roman republic, in its different forms of government under conſuls, dictators, tribunes, decemvirs, triumvirs, emperors, and we may almoſt add popes, became and conſtituted one great, increaſing, and at laſt UNIVERSAL EMPIRE, or rather *tyranny*, over all the reſt of the known world, ſuch as has never ſince been equalled by the government of any other nation. The ſtrong reſemblance of theſe four univerſal empires to the prophetic deſcription of them given by Daniel, under the ſimilitude of 4 great beaſts, (an emphatical ſcriptural expreſſion for the various tyrannies that have prevailed among mankind), and this viſion being ſeen too by the prophet at a time when only the firſt of them had begun to exerciſe its tyranny over the world, muſt ſatisfy every Chriſtian, as well as every man who is willing to lay aſide prejudice, of the divine inſpiration o that prophet. (See DAN. Ch. ii, vii, and viii. *Prideaux's Connection*; Selden, *De quatuor monarchiis*, &c.)

MONARDA, INDIAN HOREHOUND, *Oſweg Tea*, or AMERICAN FIELD BASIL, in botany; genus of the monogynia order, belonging to th diandria claſs of plants; and in the natural method ranking under the 42d order, *Verticillat*. The corolla is unequal, with the upper lip linear involving the filaments; There are 4 ſeeds. Th moſt remarkable ſpecies is,

MONARDA ZEYLANICA, a native of the Eaſt Indies. It riſes with an herbaceous four-cornered hoary ſtalk, and bears leaves that are entire, nearly heart-ſhaped, woolly, deep-notched on th edges, and having foot-ſtalks. The flowers, which are purpliſh and fragrant, ſurround the ſtalk i whorls, each whorl containing about 14 flowers; and are ſucceeded by 4 ſmall kidney-ſhaped ſhining ſeeds, lodged in the bottom of the permanent flower cup. The Indians ſuperſtitiouſly believe that a fumigation of this plant is effectual for driving away the devil; and from this imaginary property its name in the Ceyloneſe language is derived. Grimmius relates, in his *Laboratorium Ceylanicum*, that for taſte and ſmell this ſpecies of horehound ſtands remarkably diſtinguiſhed. A water and ſubtile oil are obtained from it, both of which are greatly commended in obſtructions of the matrix. A ſyrup is likewiſe prepared from it, which is uſeful in theſe diſorders, as well as in diſeaſes of the ſtomach.

MONARDES, Nicholas, an excellent Spaniſh phyſician of Seville, who lived in the 16th century, and deſervedly acquired great reputation by his ſkill and writings. His Spaniſh works were tranſlated into Latin by Cluſius, into Italian by Annibal Brigantus, and thoſe upon American drugs have appeared in Engliſh. He died about 1578.

MONASTEER, or **MONASTER**, } an ancient town of Tunis, on a peninſula, built by the Arabs, 70 miles SE. of Tunis, or 45 according to Mr Cruttwell. Lon. 11. 6. E. Lat. 35. 50. N.

MONASTEREVAN, a poſt town of Ireland, in Kildare, Leinſter, 36 miles from Dublin. This town has its name from a magnificent monaſtery which was founded here, in which St Evan in the beginning of the 7th century placed a number of monks from S. Munſter, and which was a ſanctuary. St Evan's feſtival is held on the 22d Dec. At the ſuppreſſion of monaſteries, this abbey was granted to George Lord Audley, who aſſigned it to Adam Loftus, viſcount Ely. It afterwards came into the family of Moor, earls of Drogheda, and has been beautifully repaired by Lord Drogheda, yet ſtill preſerving the venerable appearance of an abbey. The grand canal is carried up to this town from Dublin, ſince which it has been much enlarged with new buildings. It is a market town, and holds 4 fairs.

MONASTEROLO, a town of France, in the dep. of the Po, and late prov. of Piedmont, 3 miles NW. of Savigliano.

MONASTERVAN. See MONASTEREVAN.

(1.) * **MONASTERY**. *n. ſ.* [*monaſtere*, Fr. *monaſterium*, Lat.] Houſe of religious retirement; convent; abbey; cloiſter. It is uſually pronounced, and often written, *monaſtry*.—

There, virgins honourable vows receiv'd,
But chaſte as maids in *monaſteries* liv'd. *Dryden.*

—In a *monaſtery* your devotions cannot carry you ſo far toward the next world, as to make this loſe the ſight of you. *Pope.*

(2.) MONASTERY is only properly applied to the houſes of monks, mendicant friars, and nuns. Abbeys, priories, &c. are more properly called *religious houſes*. For the origin of monaſteries, ſee MONASTIC, § 2, and MONK, § 2. The houſes belonging to the ſeveral religious orders in England and Wales were, cathedrals, colleges, abbeys, priories, preceptories, commanderies, hoſpitals, friaries, hermitages, chantries, and free chapels. Theſe were under the direction and management of various officers. The diſſolution of houſes of this kind began ſo early as 1312, when the Templars were ſuppreſſed; and in 1323 their lands, churches, advowſons, and liberties, in England, were given by 17 Ed. II. ſt. 3. to the prior and brethren of the hoſpital of St John at Jeruſalem. In 1390, 1437, 1441, 1459, 1497, 1505, 1508, and 1515, ſeveral other houſes were diſſolved, and their revenues ſettled on different colleges in Oxford and Cambridge. Soon after the laſt period, Cardinal Wolſey, by licence of the king and pope, obtained a diſſolution of above 30 religious houſes for the founding and endowing his colleges at Oxford and Ipſwich. About the ſame time a bull was granted by the ſame pope to Card. Wolſey to ſuppreſs monaſteries where there were not above ſix monks, to the value of 8000 ducats a-year, for endowing Windſor and King's College in Cambridge; and two other bulls were granted to Cardinals Wolſey and Campeius, where there were leſs than 12 monks, and to annex them to the greater monaſteries; and another bull to the ſame cardinals to inquire about abbeys to be ſuppreſſed in order to be made cathedrals. Although nothing appears to have been done in conſequence of theſe bulls, the motive which induced Wolſey and many others to ſuppreſs theſe houſes was the deſire of promoting learning: and Abp. Cranmer engaged in it with a view of carrying on the Reformation. There were other cauſes that concurred to bring on their ruin: many of the religious were looſe and vicious; the monks were generally thought to be in their hearts attached to the pope's ſupremacy; their revenues were not employed according to the intent of the donors; many cheats in images, feigned miracles, and counterfeit relics, had been diſcovered, which brought the monks into diſgrace; the obſervant friars had oppoſed the king's divorce from Q. Catherine; and theſe circumſtances operated, in concurrence with the king's want of a ſupply and the people's deſire to ſave their money, to forward a motion in parliament, that in order to ſupport the king's ſtate, and ſupply his wants, all the religious houſes might be conferred upon the crown which were not able to ſpend above L.200 a-year; and an act was paſſed for that purpoſe 27 Hen. VIII. c. 28. By this act, about 380 houſes were diſſolved, and a revenue of L.30,000 or L.32,000 a-year came to the crown; beſides about L.100,000 in plate and jewels. The ſuppreſſion of theſe houſes occaſioned diſcontent, and at length an open rebellion: when this was appeaſed, the king reſolved to ſuppreſs the reſt of the monaſteries, and appointed a new viſitation; which cauſed the greater abbeys to be ſurrendered; and it was enacted by 31 Hen. VIII. c. 13. that all monaſteries, &c. which have been ſurrendered ſince the 4th of February, in the 27th year of his reign, and which hereafter ſhall be ſurrendered, ſhall be veſted in the king. The knights of St John of Jeruſalem were alſo ſuppreſſed by the 32 Hen. VIII. c. 24. The ſuppreſſion of theſe greater houſes by theſe two acts produced a revenue to the king of above L.100,000 a-year, beſides a large ſum in plate and jewels. The laſt act of diſſolution in this king's reign was the act of 37 Hen. VIII. c. 4. for diſſolving colleges, free chapels, chantries, &c. which act was farther enforced by 1 Edw. VI. c. 14. By this act were ſuppreſſed 90 colleges, 110 hoſpitals, and 2374 chantries and free chapels. The number of houſes and places ſuppreſſed from firſt to laſt, ſo far as any calculations appear to have been made, has been eſtimated at 3,182; beſides many others of inferior rank, of which no account was kept. The total annual revenue of theſe is eſtimated at no leſs than L. 140,784 : 19 : 3½, all of which, beſides a vaſt quantity of ſilver plate, came into the king's hands; which, conſidering the value of money at that time, is ineſtimable. The total number of perſons contained in theſe houſes is eſtimated at 50,000. As there were penſions paid to almoſt all thoſe of the greater monaſteries, the king did not immediately come into the full enjoyment of their whole revenues: however, by means of what he did receive, he founded ſix new biſhoprics, viz. thoſe of Weſtminſter (which was changed by Q. Eliſabeth into a deanery, with 12 prebends and a ſchool), Peterborough, Cheſter, Glouceſter, Briſtol, and Oxford. And in 8 other ſees he founded deaneries and chapters, by converting the priors and monks into deans and prebendaries, viz. Canterbury, Wincheſter, Durham, Worceſter, Rocheſter, Norwich, Ely, and Carliſle. He founded alſo the colleges of Chriſt-church in Oxford and Trinity in Cambridge, and finiſhed King's college there. He likewiſe founded profeſſorſhips of divinity, law, phyſic, and of the Hebrew and Greek tongues, in both the ſaid univerſities. He gave the houſe of Grey-friars and St Bartholomew's hoſpital to the city of London, and a perpetual penſion to the poor knights of Windſor, and laid out great ſums in building and fortifying many ports in the channel. It is obſervable, upon the whole, that the diſſolution of theſe houſes was an act, not of the church, but of the ſtate; in the period preceding the Reformation, by a king and parliament of the Roman catholic communion, in all points except the king's ſupremacy; to which the pope himſelf, by his bulls and licences, had led the way.

* MONASTICALLY. *adv.* [from *monaſtick.*] Recluſely; in the manner of a monk.—I have a dozen years more to anſwer for, all *monaſtically* paſſed in this country of liberty and delight. *Swift.*

* MONASTICAL. } *adj.* [*monaſtique*, Fr.
(1.) * MONASTIC. } *monaſticus*, Lat.] Religiouſly recluſe; pertaining to a monk.—I drave my ſuitor to forſwear the full ſtream of the world, and to live in a nook merely *monaſtick. Shak.*—The ſilicious and hairy veſts of the ſtricteſt orders of friars derive the inſtitution of their *monaſtick* life from the example of John and Elias. *Brown.*—

> When young, you led a life *monaſtick*,
> And wore a veſt eccleſiaſtick. *Denham.*

(2.) *The* MONASTIC LIFE, or PROFESSION, is a kind of civil death, which in all worldly matters has the ſame effect with the natural death. The council of Trent, &c. fix 16 years for the age at which a perſon may be admitted into the monaſtical ſtate. St Antony, in the 4th century, firſt inſtituted the monaſtic life, as St Pachomius, in the ſame century, firſt ſet on foot the cœnobitic life, *i. e.* regular communities of religious. In a ſhort time the deſarts of Egypt became inhabited with a ſet of ſolitaries, who took upon them the monaſtic profeſſion. St Baſil carried the monkiſh humour into the eaſt, where he compoſed a rule which afterwards obtained through a great part of the weſt. In the 11th century the monaſtic diſcipline was grown very remiſs. St Odo firſt began to retrieve it in the monaſtery of Cluny: that monaſtery, by the conditions of its erection, was put under the immediate protection of the holy ſee; with a prohibition to all powers, both ſecular and eccleſiaſtical, to diſturb the monks in the poſſeſſion of their effects, or the election of their abbot. In virtue hereof they pleaded an exemption from the juriſdiction of the biſhop, and extended this privilege to all the houſes dependent on Cluny. This made the firſt congregation of ſeveral houſes under one chief immediately ſubject to the pope, ſo as to conſtitute one body, or, as they now call it, one *religious order*. Till then, each monaſtery was independant and ſubject to the biſhop. See MONK, N° 2.

MONASTIER, a town of France, in the dep. of the Upper Loire; 9 miles SSE. of Puy in Velay.

MONASTIRSKA, a town of Ruſſia, in Tobolſk, on the Mura. Lon. 117. 10. E. Ferro. Lat. 57. 4. N.

MONAULOS, the ancient Egyptian flute. See MUSIC, *Hiſtory*.

MONBABUS, a town of France, in the dep. of Lot and Garonne, 5 miles SSW. of Lauſun.

MONBAZA. See MOMBAZA, N° 1, 2, 3.

MONBAZENS, a town of France, in the dep. of Aveiron; 3 miles S. of Albin.

MONBECHIO, a town of Naples, in Principato Ultra, 15 miles E. of Conza.

MONBLANC, a town of Spain, in Catalonia.

MONBODDO, James Burnet, Lord; a late eminent Scottiſh judge and man of letters, deſcended of an ancient family in Kincardineſhire. He was born in 1714, and educated at one of our univerſities, at a period when an enthuſiaſtic admiration of the claſſical literature of Greece and Rome was very predominant. Having gone through the uſual courſe of ſtudies preparatory to the profeſſion of a lawyer, with uncommon diligence, he was admitted a member of the faculty of Advocates in 1737; and, in 1767, was appointed one of the Senators of the college of juſtice; an office which he diſcharged with aſſiduity, integrity, and abilities. He married Miſs Farquarſon, a very amiable lady, by whom he had a ſon and two daughters, all of whom died before him, except the eldeſt, who was married to Kirkpatrick Williamſon, Eſq. He had the offer of a ſeat in the Court of Juſticiary, but refuſed it, as its additional duties would have detached him too much from his favourite literary ſtudies. The courſe of theſe, and his particular habits of thinking, led him to entertain a moſt enthuſiaſtic veneration for the wiſdom and learning of the ancients, and a proportional degree of contempt for thoſe of the moderns. The firſt evidence he gave to the public, of this admiration of ancient authors, was in his work *Of the Origin and Progreſs of Language*; the firſt vol. of which was publiſhed at Edin. in 4to, 1772. This and the ſubſequent volumes were peruſed by critics with ſentiments of mingled reſpect, indignation, and ridicule. Along with the philoſophical hiſtory of language, his plan included that of civilization and ſcience; upon all of which he certainly advanced opinions equally ſingular and whimſical. Thoſe who were partial to modern literature, or were ſtrangers to the deeper myſteries of Greek erudition, condemned his lordſhip's work with the moſt ſevere cenſures. The Scottiſh literati, almoſt to a man, declared it to be unworthy of peruſal, unleſs as a piece of amuſement from its ridiculous abſurdity. Nothing elſe (they alleged) could have prevented it from falling as a dead-born abortion from the preſs. In England, however, its reception was ſomewhat more favourable. In the late Mr Harris of Malmeſbury he found an admirer and correſpondent, who was equally well acquainted with Grecian learning and philoſophy, and who had cultivated theſe branches of ſcience with equal ardour as himſelf. His late learned fellow ſenator, Lord GARDENSTONE, was alſo among the number of his particular friends and admirers, though he did not coincide with him in his peculiar opinions. During the vacations of the Court of Seſſion, Lord Monboddo retired every ſpring and autumn to his ſeat of Monboddo, where he uſually lived in a ſtyle of the moſt primitive ſimplicity, dreſſed in the habit of a country farmer, in coarſe cloth of Scots manufacture. Among his tenants he lived familiarly like the kind father of a large family. His patrimonial eſtate did not afford above L.300 a-year; yet he never raiſed their rents, or diſmiſſed a poor old tenant for the ſake of any augmentation, though ſuch offers were often made both to him and Lord Gardenſtone. He reckoned the chief *improvement* of an eſtate to conſiſt in the increaſe of the number and happineſs of its inhabitants. It was in this patriarchal retreat in the Mearns, that he had the pleaſure of a viſit from the celebrated Dr JOHNSON, and his friend Mr BOSWELL; and though the Dr's ſtrong prejudices, literary, religious, and philoſophical, were quite a contraſt to thoſe of his lordſhip, every ſubject of controverſy was avoided, and nothing but good humour, hoſpitality, and courteſy, prevailed. To vindicate the honour of the ancients, and the principles of the Grecian philoſophy, more fully than he had done in his former work, Lord Monboddo publiſhed another 4to volume, entitled *Ancient Metaphyſics*, which was much more favourably received than the former. Naturally endued with a good conſtitution, which was ſtrengthened by air, exerciſe, temperance, and a habitual philoſophical calmneſs, which bid defiance to the irritations of violent paſſions, (though the deaths of his ſon, wife, and youngeſt daughter, affected him very ſeverely,) he prolonged his life till the 85th year; and died at Edinburgh on Sunday the 26th May, 1799.

MONCALLIER, a town of France, in the department of the Po, and late province of Piedmont; 5 miles SE. of Turin. Lon. 7. 48. E. Lat. 45. 2. N.

(1) MONCALVO, a ſtrong town of France, in the department of Marengo, and late duchy of Montferrat; ſeated on a mountain, 7 miles SW. of Caſale, and 9 N. of Aſti. Lon. 7. 19. E. Lat. 45. 10. N.

(2.) MONCALVO, a town in Iſtria; 7 miles E. of Rovigno.

MONCAON, or MONZON, a town of Portugal, in the prov. of Entre-Douro-e-Minho, with a ſtrong caſtle. The Spaniards have ſeveral times attempted to take it, but in vain. Lon. 8. 2. W. Lat. 41. 52. N.

MONCAU, a town of France, in the dep. of Lot and Garonne; 6 miles E. of Nerac, and 8 SW. of Agen.

MONCEAU, a town of France, in the dep. of the Ourte, and late biſhopric of Liege; 2 miles W. of Charleroy.

MONCEAUX, a town of France, in the dep. of the Nievre, 4½ miles N. of Corbigny.

MONCHAMP, a town of France, in the dep. of the Vendee; 15 miles SE. of Montaigu.

MONCHAUD, a town of France, in the dep. of Lower Charente; 12 miles SE. of Saintes.

MONCHY BRÊTON, a town of France, in the dep. of the Straits of Calais; 4½ miles NE. of St Pol.

(1.) MONCLAR, a town of France, in the dep. of Lot; 28 miles S. of Cahors.

(2.) MONCLAR, a town of France, in the dep. of Lot and Garonne; 7½ miles NW. of Villeneuve.

MONCON, or MONZON, a ſtrong town of Spain, in Arragon. It was taken by the French in 1642, but retaken by the Spaniards in 1643. It is ſeated at the confluence of the Soſa and Cinca. Lon. 0. 19. E. Lat. 41. 43. N.

MONCONTOUR, 2 towns of France; 1. in the dep. of the North Coaſts, 9 miles SSW. of Lamballe: 2. in that of Vienne, 8 miles SSW. of Loudun.

MONCRIF, Francis Auguſtin Paradis DE, ſecretary to Count Clermont, reader to the queen, one of the 40 of the French academy, and a member of the academies of Nanci and Berlin, was born at Paris of reſpectable parents, A. D. 1687. and died there Nov. 12. 1770, aged 83. He poſſeſſed an ingenious mind, an engaging perſon, and an obliging temper. His principal works are, 1. *Eſſai ſur la neceſſitè et ſur les moyens de plaire*, in 12mo. 2. *Les Ames rivales*, a romance. 3. The *Abderites*, a comedy; 4. *Poeſies diverſes*, and ſome diſſertations, publiſhed at Paris 1743, in 12mo. 5. Some little pieces of one act; which make part of different operas. He alſo cultivated lyric poetry, and wrote, 6. *L' Empire de l' Amour*, a ballet; 7. *Tropheé*; 8. *Ames reunis*, a ballet; and, 9. *Eroſine*, a heroic paſtoral. 10. *L'Hiſtoire des Chats.* His works were collected, in 1761, in 4 vols. 12mo.

MONCUÇQ, a town of France, in the dep. of Lot, 12 miles SW. of Cahors.

MONDA, or MUNDA, in ancient geography, a river of Luſitania, running midway from E. to W. into the Atlantic, between the Durius and Tagus, and waſhing Conimbrica; now called MONDEGO.

(1.) * MONDAY. *n. ſ.* [from *moon* and *day*.] The ſecond day of the week.

(2.) MONDAY is ſo called as being anciently ſacred to the Moon, or to *Mona*, the Diana of the Saxons.

MONDEGO, a river of Portugal, which, running by Coimbra, falls into the Atlantic, 30 miles below it.

MONDEJAR, a town of Spain, in Caſtile.

MONDELLO, a town of Sicily, in Mazara; 14 miles NW. of Palermo.

MONDEVILLE, a town of France, in the dep. of Calvados; 3 miles E. of Caen.

MONDIDIER. See MONT-DIDIER.

MONDONNEDO, a town of Spain, in Galicia, in a fertile country, with a biſhop's ſee; 60 miles NE of Compoſtella. Lon. 7. 10. W. Lat. 43. 30. N.

MONDOUBLEAU, a town of France, in the dep. of Loir and Cher, and late prov. of Blaſois; with a caſtle, 13 miles N. of Vendome.

MONDOVI, a conſiderable town and diſtrict of Italy, in the late province of Piedmont, now annexed to the French empire, and included in the dep. of Stura. It was built in 1232, but was inhabited from 1038. It was anciently a republic, but in 1347 ſurrendered to the D. of Savoy, and afterwards to the K. of Naples; but Q. Jane reſtored it to liberty. It again fell under the power of Amadæus D. of Savoy, in 1396; and continued under that houſe till the 21ſt April 1796, when it was taken by the French, after a battle on the 16th, wherein they killed 500, took 1300 priſoners, 11 ſtandards, 8 cannons, and 15 waggons. It has a citadel built by Emanuel Philibert in 1573, and is ſeated on a mountain near the Elero, 18 miles SE. of Saluzzo, and 30 S. of Turin. Lon. 8. 6. E. Lat. 44. 33. N.

MONDRAGON, a town of France, in the dep. of Tarn; 10 miles S. of Alby, and 12 NNW. of Caſtres.

MONEA, a town of Ireland, in Fermanagh.

MONEDA, a town of Sweden, in Smaland.

MONEDIE, a pariſh of Perthſhire, 6 miles NW. of Perth, and about 3 long and 3 broad. The ſurface conſiſts of riſing grounds, N. and S. of the banks of the SHOCHIE; the ſoil light loam, gravel, rich loam, deep clay, and cold wet till. The air is dry and ſalubrious. Two natives died lately, aged above 100. Huſbandry is much improved, as well as the breeds of ſheep and horſes. The common crops are raiſed; lint thrives well; and apiaries are numerous and ſucceſsful. The population, in 1791, was 520; but the new pariſh of *Logie-Amon*, which is annexed to Monedie, *quoad* ſacra, and is 4½ miles ſquare, contains about 800 ſouls; ſo that the decreaſe, ſince 1755, is 172 on the whole. The grave of Miſſes Bell and Gray is in this pariſh. See BELL, N° II.

MONEGLIA, a town of Liguria, 7½ miles W. of Brugneto.

MONEINS, a town of France, in the dep. of the Lower Pyrenees; 9 miles W. of Pau.

(1.) **MONEMUGI**, MONO-EMUGI, or NIMAAMA, an empire in the S. of Africa, which has Zanguebar on the E. Monomotapa on the S. Motamba and Makoka on the W. and Abyſſinia on the N. and partly to the E. though its boundaries that way cannot be aſcertained. It is divided into the kingdoms of Mujaco, Makoko or Anſiko, Gingiro, Cambate, Alaba, and Monemugi Proper. It abounds with gold, ſilver, copper mines, and elephants. The natives clothe themſelves in ſilks and cottons, and wear collars of tranſparent amber-beads, brought from Cambaya: which ſerve alſo inſtead of money; gold and ſilver being common, and of little value among them. Their monarch always endeavours to be at peace with the princes round about him, and to keep an open trade with Quitoa, Melinda, and Mombaza, on the E. and with Congo on the W. from all which places the black merchants reſort thither for gold. On the E. ſide of Monemugi there is a great lake full of ſmall iſlands, abounding with all ſorts of fowl and cattle, and inhabited by negroes. This country affords alſo abundance of palm wine and oil, and ſuch quantities of honey, that above half of it is loſt, the natives not being able to conſume it. The air is generally very unwholeſome, and exceſſively hot, which is the reaſon why no Chriſtians travel in this empire. De Liſle ſays this country is divided into thoſe of the Maracates, the Meſſeguaries, and the kingdoms of the Buengas, Maſti, and Maravi. But theſe nations and kingdoms are very little known.

(2.) MONEMUGI, PROPER, lies in the middle of the torrid zone, and about the equinoctial line S. of Makoko, W. of Zanguebar, N. of Monomotopa, and E. of Congo and of the northern parts of Monomotopa. Its extent is not known.

MONESTES, a town of France, in the dep. of Tarn, 4 miles N. of Alby, and 13½ NE. of Gailiac.

(1, 2.) **MONESTIER**, two towns of France, in the dep. of the Upper Alps; the one 9 miles W. of Briançon, and the other 15 miles NW. of Gap.

(3.) MONESTIER DE CLERMONT, a town in the dep. of Iſere, famous for its medicinal ſprings, 15 miles NE. of Die, and 17 S. of Grenoble.

MONETARIUS, or MONEYER, a name which antiquaries and medaliſts give to thoſe who ſtruck the ancient coins or monies. Many of the old Roman coins have the name of the *monetarius*, either at length, or at leaſt his initial letters. See NUMISMATOGRAPHY.

MONETIA, in botany, a genus of the monogynia order, belonging to the tetandria claſs of plants.

(1.) * **MONEY.** *n. ſ.* [*monnoye*, Fr. *moneta*, Lat. It has properly no plural except when money is taken for a ſingle piece; but *monies* was formerly uſed for ſums.] Metal coined for the purpoſes of commerce.—

Importune him for *monies*; be not ceaſt
With ſlight denial. *Shak. Timon of Athens.*

—The jealous wittolly knave hath maſſes of *money*. *Shak.*—

You need my help, you ſay,
Shylock, we would have *monies*. *Shak.*

—I will give thee the worth of it in *money*. 1 *Kings*

And lend the *monies* on return of luſt. *B. Jonſ.*

xxi. 2.—

—*Money* differs from uncoined ſilver, in that the quantity of ſilver in each piece of *money* is aſcertained by the ſtamp it bears, which is a public voucher. *Locke.*—My diſcourſe to the hen-peck'd has produced many correſpondents; ſuch a diſcourſe is of general uſe, and every married man's *money*. *Spectator.*—Shall I withhold a little *money* or food from my fellow creature, for fear he ſhould not be good enough to receive it from me? *Law.*—People are not obliged to receive any *monies*, except of their own coinage by a publick mint. *Swiſt.*—Thoſe huckſterers or *money*-jobbers will be found neceſſary, if this braſs *money* is made current in the exchequer. *Swiſt.*

(2.) **Money** is a piece of matter, commonly metal, to which public authority has affixed a certain value and weight, to ſerve as a medium in commerce. See **Bank**, **Coin**, **Numismatography**, and **Trade**.—Money is uſually divided into *real* or *effective*, and *imaginary* or *money of account*.

(3.) **Money, ancient real.** Real money includes all coins, or ſpecies of gold, ſilver, copper, and the like, which have courſe in common, and do really exiſt. Such are guineas, piſtoles, pieces of eight, ducats, &c.—Real money, civilians obſerve, has three eſſential qualities, viz. matter, form, and weight or value. For the *matter*, copper is that thought to have been firſt coined; afterwards ſilver; and laſtly gold, as being the moſt beautiful, ſcarce, cleanly, diviſible, and pure, of all metals. The degrees of *goodneſs* or *fineneſs* are expreſſed in gold by carats, and in ſilver by pennyweights, &c. For there are ſeveral reaſons for not coining them pure and without alloy, viz. the great loſs and expenſe in refining them, the neceſſity of hardening them to make them more durable, and the ſcarcity of gold and ſilver in moſt countries. See **Alloy**. Among the ancient Britons, iron rings, or, as ſome ſay, iron plates, were uſed for money; among the Lacedemonians, iron bars quenched with vinegar, that they might not ſerve for any other uſe. Seneca obſerves, that there was anciently ſtamped money of leather, *corium forma publica impreſſum*. And the ſame thing was put in practice by Frederic II. at the ſiege of Milan. There is alſo an old tradition, that, during the barons wars, the like was done in England. The Hollanders coined great quantities of paſteboard in 1574. As to the *form* of money, it has been more various than the matter. Under this are comprehended the weight, figure, impreſſion, and value. For the *impreſſion*, the Jews, though they deteſted images, yet ſtamped on the one ſide of their ſhekel the golden pot which had the manna, and on the other Aaron's rod. The Dardans ſtamped two cocks fighting. The Athenians ſtamped their coins with an owl, or an ox; whence the proverb on bribed lawyers, *Bos in lingua*. They of Ægina, with a tortoiſe; whence that other adage, *Virtutem et ſapientiam vincunt teſtudines*. Among the Romans, the monetarii ſometimes impreſſed the images of men that had been eminent in their families on the coins; but no living man's head was ever ſtamped on a Roman coin till after the fall of the commonwealth. From that time they bore the emperor's head on one ſide. From this time the practice of ſtamping the prince's image on coins has obtained among all civilized nations, the Turks and other Mahometans alone excepted, who, in deteſtation of images, inſcribe only the prince's name, with the year of the Hegira. As to the *figure*, it is either round, as in Britain; multangular or irregular, as in Spain; ſquare, as in ſome parts of the Indies; or nearly globular, as in moſt of the reſt. After the arrival of the Romans in this iſland, the Britons imitated them, coining both gold and ſilver with the images of their kings ſtamped on them. When the Romans had ſubdued the kings of the Britons, they alſo ſuppreſſed their coins, and brought in their own; which were current here from the time of Claudius I. to that of Valentinian II. about the ſpace of 500 years. Mr Camden obſerves, that the moſt ancient Engliſh coin he had known was that of Ethelbert king of Kent, the firſt Chriſtian king in the iſland; in whoſe time all money accounts begin to paſs by the names of *Pounds*, *Shillings*, *Pence*, and *Mancuſes*. Pence ſeems to have been borrowed from the Latin *pecunia*, or rather from *pendo*, on account of its juſt weight, which was about 3d. of our money. Theſe were coarſely ſtamped with the king's image on the one ſide, and either the mint-maſter's or the city's where it was coined, on the other. Five of theſe pence made their ſchilling, probably ſo called from *ſcilingus*, which the Romans uſed for the 4th part of an ounce. Forty of theſe ſcillings made their pound; and 400 of theſe pounds were a legacy, or a portion for a king's daughter, as appears by the laſt will of king Alfred. By theſe names they tranſlated all ſums of money in the old Engliſh New Teſtament; talents by *pundes;* Judas's thirty pieces of ſilver by *thirtig ſcillinga;* tribute-money by *penining;* the mite by *feorthling*. But they had no other real money, except theſe pence; the reſt being imaginary moneys, *i. e.* names of number or weights. Thirty of theſe pence made a mancus, which ſome take to be the ſame with a mark: manca, as appears by an old MS. was *quinta pars unciæ*. Theſe mancas or mancuſes were reckoned both in gold and ſilver; for in 680 we read that Ina king of the Weſt Saxons obliged the Kentiſh men to buy their peace at the price of 30,000 mancas of gold. In the notes on King Canute's laws, we find this diſtinction, that *mancuſa* was as much as a mark of ſilver; and *manca*, a ſquare piece of gold, valued at 30 pence. The Danes introduced a way of reckoning money by ores, *per oras*, mentioned in Domeſday book; but whether they were a diſtinct coin, or a certain ſum, is not clear. This, however, may be gathered from the Abbey Book of Burton, that 20 ores were equivalent to two marks. They had alſo a gold coin called *byzantine*, or *bezant*, as being coined at Conſtantinople, then called *Byzantium*. See **Besant**, N° 1. The value of this coin is not only now loſt, but was ſo entirely forgot even in the time of King Edward III. that whereas the biſhop of Norwich was fined a bizantine of gold, to be paid the abbot of St Edmund's Bury for infringing his liberties (as it had been enacted by parliament in the time of the conqueror), no man then living could tell how much it was; ſo it was referred to the king to rate how much he ſhould pay: Which is the more unaccountable, becauſe, only 100 years before, 200,000 bezants were exacted by the ſoldan for the ranſom of St Lewis of France; which were then valued at 100,000 livres. Though the coining of money be now a ſpecial prerogative of the king, yet the ancient Saxon princes communicated it to their ſubjects; inſomuch, that in every good town there was at leaſt one mint; but at London eight; at Canterbury four for the king, two for the archbiſhop, one for the abbot at Wincheſter, ſix at Rocheſter, at Haſtings two, &c. The Norman kings continued the ſame cuſtom of coining only pence, with the prince's image on one ſide, and on the other the name of the city where it was coined, with a croſs ſo deeply impreſſed, that it might be eaſily broken into two halves, which they called *halfpence;* or into 4 parts, which they called *fourthings* or *farthings.* In the time of K. Richard I. money, coined in the eaſt parts of Germany, was in great requeſt in England on account of its purity, and was called *eaſterling money,* as all the inhabitants of thoſe parts were called *Eaſterlings.* And ſhortly after, ſome of thoſe people ſkilled in coining were ſent for hither, to bring the coin to perfection; which from them was called *eaſterling,* and has ſince, by contraction, been called *ſterling.* See STERLING. King Edward I. who firſt adjuſted the meaſure of an ell by the length of his arm, was the firſt alſo who eſtabliſhed a certain ſtandard for the coin, which is expreſſed to this effect by Greg. Rockley, mayor of London, and mint-maſter.—"A pound of money containeth 12 oz.: in a pound there ought to be eleven ounces, two eaſterlings, and one farthing; the reſt alloy. The ſaid pound ought to weigh twenty ſhillings and three pence in account and weight. The ounce ought to weigh twenty pence, and a penny twenty-four grains and a half. Note, that eleven ounces two pence ſterling ought to be of pure ſilver, called *leaf ſilver;* and the minter muſt add of other weight ſeventeen pence halfpenny farthing, if the ſilver be ſo pure." About 1320, the kings of Europe firſt began to coin gold; and among the reſt, King Edward III. The firſt pieces he coined were called *florences,* being coined by Florentines; afterwards he coined nobles; then roſe-nobles, current at 6s. 8d.; half-nobles, called *half pennies,* at 3s. 4d. of gold; and quarters at 20d. called *farthings of gold.* The ſucceeding kings coined roſe-nobles, and double roſe-nobles, great ſovereigns, and half Henry nobles, angels, and ſhillings. King James I. coined units, double crowns, Britain crowns; then crowns, half crowns, &c.

(4.) MONEY, COMPARATIVE VALUE OF, WITH COMMODITIES, AT DIFFERENT PERIODS. The Engliſh money, though the ſame names do by no means correſpond with the ſame quantity of precious metal as formerly, has not changed ſo much as the money of moſt other countries. From the time of William I. the proportion between the pound, the ſhilling, and the penny, ſeems to have been uniformly the ſame as at preſent. Edward III. was the firſt Engliſh monarch that coined any gold; and no copper was coined by authority before James I. Theſe pieces were not called farthings, but *farthing tokens;* and all people were at liberty to take or refuſe them. Before the time of Edward III. gold was exchanged, like any other commodity, by its weight; and before the time of James I. copper was ſtamped by any one perſon who choſe to do it. In 712 and 727, an ewe and lamb were rated at 1s. Saxon money, till a fortnight after Eaſter. Between the years 900 and 1000, two hydes of land, each containing about 120 acres, were ſold for 100 ſhillings. In 1000, by King Ethelred's laws, a horſe was rated at 30s. a mare or a colt of a year old, at 20s. a mule, or young aſs, at 12s. an ox at 30s. a cow at 24s. a ſwine at 8d. a ſheep at 1s. In 1043, a quarter of wheat was ſold for 60d. Hence it is computed, that in the Saxon times there was ten times leſs money, in proportion to commodities, than at preſent. Their nominal ſpecie, therefore, being about three times higher than ours, the price of every thing, according to our preſent language, muſt be reckoned thirty times cheaper than it is now. In the reign of William I. commodities were ten times cheaper than they are at preſent; from which we cannot help forming a very high idea of the wealth and power of that king: for his revenue was 400,000l. per annum, every pound being equal to a pound weight of ſilver; conſequently the whole may be eſtimated at 1,200,000l. of the preſent computation; a ſum which, conſidering the different value of money between that period and the preſent, was equivalent to 12,000,000l. of modern eſtimation. The moſt neceſſary commodities do not ſeem to have advanced in their price from the time of William I. to Richard I. The price of corn in the reign of Henry III. was near half the mean price in our times. Bp. Fleetwood has ſhown, that in 1240, L.4:13:9 was worth about 50l. of our preſent money. About the end of this reign, Robert de Hay, rector of Souldern, agreed to receive 100s. to purchaſe to himſelf and ſucceſſor the annual rent of 5s. in full compenſation of an acre of corn. Butchers meat, in the time of the great ſcarcity in the reign of Edward II. was, by a parliamentary ordinance, ſold three times cheaper than our mean price at preſent; poultry ſomewhat lower. The mean price of corn at this period was half the preſent value, and the mean price of cattle one eighth. In the reign of Edward III. the moſt neceſſary commodities were in general about 3 or 4 times cheaper than they are at preſent. In thoſe times, knights, who ſerved on horſeback in the army, had 2s. a day, and a foot archer 6d. which laſt would now be equal to a crown a day. This pay has continued nearly the ſame nominally (only that, in the time of the commonwealth, the pay of the horſe was advanced to 2s. 6d. and that of the foot 1s. though it was reduced again at the Reſtoration); but ſoldiers were proportionably of a better rank formerly. In the time of Henry VI. corn was about half its preſent value; other commodities much cheaper. Bp. Fleetwood has determined, from a moſt accurate conſideration of every circumſtance, that 5l. in this reign was equivalent to 28l. or 30l. now. In the time of Henry VII. many commodities were three times as cheap here, and in all Europe, as they are at preſent, there having been a great increaſe of gold and ſilver in Europe ſince his time, occaſioned by the diſcovery of America. The reaſon why corn was always much dearer in proportion to other eatables, according to their prices at preſent, is that in early times agriculture was little underſtood. It required more labour and expence, and was more precarious, than it is at preſent. Indeed, notwithſtanding the high price of corn in thoſe times, the raiſing of it ſo little anſwered the expence, that agriculture was almoſt univerſally quitted for graſing. So that there was conſtant occaſion for ſtatutes to reſtrain graſing, and to promote agriculture; and no effectual remedy was found till the bounty upon the exportation of corn; ſince which, above ten times more corn has been raiſed in this country than before. The price of corn in the time of James I. and conſequently that of other neceſſaries of life, was not lower, but rather higher, than at preſent: wool is not two thirds of the value it was then; the finer manufactures having ſunk in price by the progreſs of art and induſtry, notwithſtanding the increaſe of money. Butchers meat was higher than at preſent. In the 13th century the common intereſt which the Jews had for their money, Voltaire ſays, was 20 per cent. But with regard to this, we muſt conſider the great contempt that nation was always held in, the large contributions they were frequently obliged to pay, the riſk they run of never receiving the principal, the frequent confiſcations of all their effects, and the violent perſecutions to which they were expoſed; in which circumſtances it was impoſſible for them to lend money at all unleſs for moſt extravagant intereſt, and much diſproportioned to its real value. Before the diſcovery of America and the plantation of our colonies, the intereſt of money was generally 12 per cent all over Europe, and it has been growing gradually leſs ſince that time, till it is now generally about four or five per cent. When ſums of money are ſaid to be raiſed by a whole people, to form a juſt eſtimate of it, we muſt take into conſideration not only the quantity of the precious metal according to the ſtandard of the coin, and the proportion of the quantity of coin to the commodities, but alſo the number and riches of the people who raiſe it: for populous and rich countries will much more eaſily raiſe any certain ſum of money than one that is thinly inhabited, and chiefly by poor people.

(5.) **Money, Imaginary,** or
(5.) **Money of Account,** } is that which has never exiſted, or at leaſt which does not exiſt in real ſpecie, but is a denomination invented or retained to facilitate the ſtating of accounts, by keeping them ſtill on a fixed footing, not to be changed, like current coins, which the authority of the ſovereign raiſes or lowers according to exigencies of the ſtate. Of this kind are pounds, livres, marks, maravedies, &c. See the annexed table, where the fictitious money is diſtinguiſhed by a dagger (†). The ancient Grecians reckoned their ſums of money by *drachmæ*, *minæ*, and *talenta*. The drachma was equal to 7¾d. Sterling; 100 drachmæ made the mina equal to 3l. 4s. 7d. Sterling; 60 minæ made the talent equal to 193l. 15s. Sterling: hence 100 talents amounted to 19,375l. Sterling. The mina and talent, indeed, were different in different provinces: their proportions in attic drachms are as follow: The Syrian mina contained 25 Attic drachms; the Ptolemaic 33⅓; the Antiochic and Eubæan 100; the Babylonic 116; the greater Attic and Tyrian 133⅓; the Æginean and Rhodian 166⅔. The Syrian talent contained 15 Attic minæ; the Ptolemaic 20; the Antiochic 60; the Eubæan 60; the Babylonic 70; the greater Attic and Tyrian 80; the Æginean and Rhodian 100. The Roman moneys of account were the *ſeſtertius* and *ſeſtertium*. The ſeſtertius was equal to 1d. 3¾p. Sterling: 1000 of theſe made the ſeſtertium, equal to 8l. 1s. 5d. 2q. Sterling. One thouſand of theſe ſeſtertia made the decies ſeſtertium (the adverb *centies* being always underſtood) equal to 8072l. 18s. 4d. Sterling. The decies ſeſtertium they alſo called *decies centena millia nummum*. Centies ſeſtertium, or centies HS, were equal to 80,729l. 3s. 4d. Millies HS to 807,291l. 13s. 4d. Millies centies HS to 888,020l. 16s. 8d.

(6.) **Money, Paper.** See **Bank**, § 10—21.

(7.) **Money, properest materials for making.** In almoſt all ages, gold and ſilver have been uſed as the common meaſure of value, for every thing alienable. Theſe metals are admirably adapted for this purpoſe: they are perfectly homogeneous: when pure, their maſſes are exactly in proportion to their weights: they are perfectly malleable, fuſible, and ſuffer the moſt exact diviſion which art is capable to give them: they are capable of being mixed with one another, as well as with metals of a leſs homogeneous nature; by this mixture they ſpread uniformly through the whole maſs, ſo that every atom of it becomes poſſeſſed of a ſhare of this noble mixture. Their phyſical qualities are invariable: they loſe nothing by keeping; they are ſolid and durable. If money, therefore, can be made of any thing, if the proportional value of things vendible can be meaſured by any thing, it may be meaſured by theſe metals. Rational as this appears, yet very plauſible arguments have been urged to prove that gold and ſilver are *incapable* of performing the office of an *invariable meaſure of value*. Were there but one metal (it is argued) poſſeſſing purity, diviſibility, and durability, the inconveniences in the uſe of it for money would be few. Such a metal might, by an unlimited diviſion into parts exactly equal, ſerve as a ſteady and univerſal meaſure. But the rivalſhip between the metals, and the perfect equality between all their phyſical qualities, render them ſo equally adapted to ſerve as the common meaſure of value, that they are univerſally admitted to paſs current as money. The conſequence is, that the one meaſures the value of the other, as well as that of every other thing. Now the moment any meaſure begins to be meaſured by another, whoſe proportion to it is not phyſically and invariably the ſame, the uſefulneſs of ſuch a meaſure is loſt. This ſpeculation might and has been carried to a great length. But as the inconveniencies ariſing from theſe metals are not very obvious, and no ſingle ſubſtitute can be found to ſuperſede the uſe of both, we think it unneceſſary to enlarge on a ſubject, which, to moſt readers, would appear unintereſting.

(8.) Money—A Table of Coins, showing the quantity of fine metal contained in them.

The number of grains of fine metal in every coin is ſought for in the regulations of the mint of the country where it is coined, and is expreſſed in the grains in uſe in that mint. From that weight it is converted into thoſe of other countries, according to the following proportions:

3840 Troy grains, 4676·35 Paris grains, 5192·8 Holland aces or grains, and 4649·06 Colonia grains, are ſuppoſed to be equal weights; and the coins in the Table are converted according to thoſe proportions.

(9.) Mone

Table of Coins, reduced to Grains of fine Metal, according to the Troy, Paris, Colonia, and Holland weights.

	Gold Coins.				Silver Coins.			
	Troy.	Paris.	Colonia.	Holland.	Troy.	Paris.	Colonia.	Holland.
English Coins.								
1 A Guinea by ſtatute	118·651	144·46	143·65	160·45				
2 A Crown by ſtatute	— —	— —	— —	— —	429·68	523·2	520·2	581·
3 A Shilling by ſtatute	— —	— —	— —	— —	85·935	104·65	104·	116·2
4 A Silver Pound Sterling by ſtatute 1601	— —	— —	— —	— —	1718·7	2093·	2080·8	2324·1
5 A Gold Pound Sterling by ſtatute 1728	113·	137·61	136·8	152·8				
6 A Silver Pound Sterling in currency = $\frac{20}{62}$ lb. Troy	— —	— —	— —	— —	1639·38	1996·4	1984·7	2216·
7 A Silver Pound Sterl. at the proportion of gold to ſilver as 1 to 14½	113·	137·61	136·8	152·8	1638·5	1995·3	1983·7	2215·7
8 A Gold Pound Sterling at the ſame proportion of 1 to 14½	118·4	144·18	143·34	168·11	1718·7	2093·	2080·8	2324·1
9 A Pound Sterling at the mean proportion in gold and in ſilver	115·769	140·98	140·16	156·55	1678·6	2044·2	2032·2	2269·9
10 A Shilling current = $\frac{1}{62}$ of a pound Troy	— —	— —	— —	— —	81·961	99·8	99·	110·82
11 A Guinea in Silver, or 21 Shillings ſtandard weight	— —	— —	— —	— —	1804·6	2197·6	2184·8	2440·3
12 A Guinea, at the proportion of 1 to 14½, worth in Silver	— —	— —	— —	— —	1720·4	2095·1	2082·8	2326·4
13 A Pound Troy, or 12 ounces Engliſh weight	5760·	7019·2	6973·5	789·2				
French Coins.								
1 A Louis d'or	113·27	137·94	137·13	153·17				
2 A Crown of ſix livres	— —	— —	— —	— —	409·94	499·22	496·3	554·3
3 A Crown of three ditto	— —	— —	— —	— —	204·97	249·61	248·15	277·1
4 A Livre	— —	— —	— —	— —	68·34	83·23	82·74	92·42
5 A Louis d'or, or 24 livres in ſilver	— —	— —	— —	— —	1639·7	1996·9	1985·2	2217·4
6 A Marc of Paris weight, fine gold or ſilver	3783·87	4608·	4581·1	5116·9	3783·87	4608·	4581·1	5116·9
7 A Marc of gold coin effective weight, in fine	3398·3	4138·5	4114·3	4593·4				
8 A Marc of ſilver coin effective weight, in fine	— —	— —	— —	— —	3402·3	4143·4	4119·2	4600·9
German Coins.								
1 A Carolin legal weight	115·45	140·6	139·78	156·12				
2 A Ducat of the Empire ditto	52·8	64·37	64·	71·48				
3 A Florin of Convention	— —	— —	— —	— —	179·73	218·87	217·6	243·
4 A Dollar of Convention	— —	— —	— —	— —	269·59	328·31	326·4	364·5
5 A Dollar of Exchange, the Carolin = flor. 42 kreutzers	17·85	21·74	21·615	24·14				
A Florin current = $\frac{1}{11}$ of a Carolin	10·54	12·84	12·77	14·26				
7 A Carolin in ſilver, at the proportion of 1 to 14½	— —	— —	— —	— —	1674·	2038·6	2026·8	2263·8
Dutch Coins.								
1 A Dutch Ducat	51·76	6·3	62·67	70·				
2 A Florin in Silver	— —	— —	— —	— —	148·	180·3	179·2	200·21

(9.) Money—UNIVERSAL TABLE

Of the present state of the Real and Imaginary Moneys of the world.

† *This mark is prefixed to the Imaginary Money, or Money of Account.*
All Fractions in the Value Engliſh are Parts of a Penny.

Europe—Northern Parts.

ENGLAND and SCOTLAND.

London, Briſtol, Liverpool, &c.
Edinburgh, Glaſgow, Aberdeen, &c.

			£.	s.	d.
A Farthing			0	0	0$\frac{1}{4}$
2 Farthings	=	a Halfpenny	0	0	0$\frac{1}{2}$
2 Halfpence		a Penny	0	0	1
4 Pence		a Groat	0	0	4
6 Pence		a Half Shilling	0	0	6
12 Pence		a Shilling	0	1	0
5 Shillings		a Crown	0	5	0
20 Shillings		†a Pound Sterling	1	0	0
21 Shillings		a Guinea	1	1	0

IRELAND.

Dublin, Cork, Londonderry, &c.

A Farthing			0	0	0$\frac{3}{13}$
2 Farthings	=	a Halfpenny	0	0	0$\frac{6}{13}$
2 Halfpence		†a Penny	0	0	0$\frac{12}{13}$
6½ Pence		a Half Shilling	0	0	6
12 Pence		a Shilling Iriſh	0	0	11$\frac{1}{13}$
13 Pence		a Shilling	0	1	0
65 Pence		a Crown	0	5	0
20 Shillings		a Pound Iriſh	0	18	5$\frac{1}{2}$
22¾ Shillings		a Guinea	1	1	0

FLANDERS and BRABANT.

Ghent, Oſtend, &c. Antwerp, Bruſſels, &c.

† A Pening			0	0	0$\frac{9}{160}$
4 Peningens	=	an Urche	0	0	0$\frac{9}{40}$
8 Peningens		†a Grote	0	0	0$\frac{9}{20}$
2 Grotes		a Petard	0	0	0$\frac{9}{10}$
6 Petards		†a Scalin	0	0	5$\frac{2}{5}$
7 Petards		a Scalin	0	0	6$\frac{3}{10}$
40 Grotes		†a Florin	0	1	6
17½ Scalins		a Ducat	0	9	3
240 Grotes		†a Pound Flem.	0	9	0

HOLLAND and ZEALAND.

Amſterdam, Rotterdam, Middleburg, Fluſhing, &c.

† A Pening			0	0	0$\frac{21}{320}$
8 Peningens	=	†a Grote	0	0	0$\frac{21}{40}$
2 Grotes		a Stiver	0	0	1$\frac{1}{20}$
6 Stivers		a Scalin	0	0	6$\frac{3}{10}$
20 Stivers		a Guilder	0	1	9
50 Stivers		a Rix-dollar	0	4	4$\frac{1}{2}$
60 Stivers		a Dry Guilder	0	5	3
105 Stivers		a Ducat	0	9	3
6 Guilders		a Pound Flem.	0	10	6

GERMANY.

HAMBURG. *Altena, Lubec, Bremen, &c.*

† A Tryling			0	0	0$\frac{3}{128}$
2 Trylings	=	†a Sexling	0	0	0$\frac{3}{64}$
2 Sexlings		a Fening	0	0	0$\frac{3}{32}$
12 Fenings		a Schilling Lub.	0	0	1$\frac{1}{8}$
16 Schillings Lub.		†a Marc	0	1	6
2 Marcs		a Slet dollar	0	3	0
3 Marcs		a Rix-dollar	0	4	6

HAMBURGH, &c.

			£.	s.	d.
6¼ Marcs		a Ducat	0	9	4$\frac{1}{2}$
120 Schillings		†a Pound Flem.	0	11	3

HANOVER. *Lunenburgh, Zell, &c.*

† A Fening			0	0	0$\frac{7}{48}$
3 Fenings	=	†a Dreyer	0	0	0$\frac{7}{16}$
8 Fenings		a Marien	0	0	1$\frac{1}{6}$
12 Fenings		a Groſh	0	0	1$\frac{3}{4}$
8 Groſhen		a Half Gulden	0	1	2
16 Groſhen		a Gulden	0	2	4
24 Groſhen		a Double Gulden	0	4	8
4 Guldens		a Ducat	0	9	2

SAXONY and HOLSTEIN.

Dreſden, Leipſic, &c. Wiſmar, Keil, &c.

† An Heller			0	0	0$\frac{7}{96}$
2 Hellers	=	a Fening	0	0	0$\frac{7}{48}$
16 Hellers		a Marien	0	0	1$\frac{1}{6}$
12 Fenings		a Groſh	0	0	1$\frac{3}{4}$
16 Groſhen		a Gould	0	2	4
24 Groſhen		a Rix-dollar	0	3	6
32 Groſhen		a Specie-dollar	0	4	8
4 Goulds		a Ducat	0	9	4

BRANDENBURGH and POMERANIA.

Berlin, Potſdam, &c. Stetin, &c.

† A Denier			0	0	0$\frac{7}{270}$
9 Deniers	=	a Polchen	0	0	0$\frac{7}{30}$
18 Deniers		a Groſh	0	0	0$\frac{7}{15}$
3 Polchens		an Abraſs	0	0	0$\frac{7}{10}$
20 Groſhen		†a Marc	0	0	9$\frac{1}{3}$
30 Groſhen		a Florin	0	1	2
90 Groſhen		†a Rix-dollar	0	3	6
180 Groſhen		an Albertus	0	4	2
8 Florins		a Ducat	0	9	4

COLOGN, *Mentz, Triers, Liege, Munich, Munſter, Paderborn, &c.*

A Dute			0	0	0$\frac{7}{80}$
3 Dutes	=	a Cruitzer	0	0	0$\frac{21}{80}$
2 Cruitzers		an Albus	0	0	0$\frac{21}{40}$
8 Dutes		a Stiver	0	0	0$\frac{7}{10}$
3 Stivers		a Plapert	0	0	2$\frac{1}{10}$
4 Plaperts		a Copſtuck	0	0	8$\frac{2}{5}$
40 Stivers		a Guilder	0	2	4
2 Guilders		a Hard Dollar	0	4	8
4 Guilders		a Ducat	0	9	4

BOHEMIA, SILESIA, and HUNGARY.

Prague, Breſlaw, Preſburg, &c.

A Fening			0	0	0$\frac{7}{60}$
2 Fenings	=	a Dreyer	0	0	0$\frac{7}{30}$
3 Fenings		a Groſh	0	0	0$\frac{7}{20}$
4 Fenings		a Cruitzer	0	0	0$\frac{7}{15}$
2 Cruitzers		a White Groſh	0	0	0$\frac{14}{15}$
60 Cruitzers		a Gould	0	2	4
90 Cruitzers		†a Rix-dollar	0	3	6
2 Goulds		a Hard dollar	0	4	8
4 Goulds		a Ducat	0	9	4

AUSTRIA AND SUABIA.

Vienna, *Trieſt*, &c. *Augſburg*, *Blenheim*, &c.

		£.	s.	d.
A Fening		0	0	0$\frac{7}{60}$
2 Fenings =	a Dreyer	0	0	0$\frac{7}{30}$
4 Fenings	a Cruitzer	0	0	0$\frac{7}{15}$
14 Fenings	a Groſh	0	0	1$\frac{19}{30}$
4 Cruitzers	a Batzen	0	0	1$\frac{13}{15}$
15 Batzen	a Gould	0	2	4
90 Cruitzers	†a Rix-dollar	0	3	6
30 Batzen	a Specie-dollar	0	4	8
60 Batzen	a Ducat	0	9	4

FRANCONIA. *Francfort*, *Nuremberg*, *Dettingen*, &c.

		£.	s.	d.
A Fening		0	0	0$\frac{7}{60}$
4 Fenings =	a Cruitzer	0	0	0$\frac{7}{15}$
3 Cruitzers	a Keyſer Groſh	0	0	1$\frac{2}{5}$
4 Cruitzers	a Batzen	0	0	1$\frac{13}{15}$
15 Cruitzers	an Ourt Gould	0	0	7
60 Cruitzers	a Gould	0	2	4
90 Cruitzers	†a Rix-dollar	0	3	6
2 Goulds	a Hard Dollar	0	4	8
240 Cruitzers	a Ducat	0	9	4

POLAND AND PRUSSIA.

Cracow, *Warſaw*, &c. *Dantzic*, *Konigſberg*, &c.

		£.	s.	d.
A Shelon		0	0	0$\frac{7}{45}$
3 Shelons =	a Groſh	0	0	0$\frac{7}{15}$
5 Groſhen	a Couſtic	0	0	0$\frac{1}{3}$
3 Couſtics	a Tinſe	0	0	7
18 Groſhen	an Ort	0	0	8$\frac{2}{5}$
30 Groſhen	a Florin	0	1	2
90 Groſhen	†a Rix-dollar	0	3	6
8 Florins	a Ducat	0	9	4
5 Rix-dollars	a Frederic d'Or	0	17	6

LIVONIA.

Riga, *Revel*, *Narva*, &c.

		£.	s.	d.
A Blacken		0	0	0$\frac{7}{90}$
6 Blackens =	a Groſh	0	0	0$\frac{7}{15}$
9 Blackens	a Vording	0	0	0$\frac{7}{10}$
2 Groſhen	a Whiten	0	0	0$\frac{14}{15}$
6 Groſhen	a Marc	0	0	0$\frac{4}{5}$
30 Groſhen	a Florin	0	1	2
90 Groſhen	†a Rix-dollar	0	3	6
108 Groſhen	an Albertus	0	4	2$\frac{6}{15}$
64 Whitens	a Copperplate Dollar	0	5	0

DENMARK, ZEALAND, AND NORWAY.

Copenhagen, *Sound*, &c. *Bergen*, *Drontheim*, &c.

		£.	s.	d.
A Skilling		0	0	0$\frac{9}{16}$
6 Skillings =	a Duggen	0	0	3$\frac{3}{8}$
16 Skillings	†a Marc	0	0	9
20 Skillings	a Rix-marc	0	0	11$\frac{1}{4}$
24 Skillings	a Rix-ort	0	1	1$\frac{1}{2}$
4 Marks	a Crown	0	3	0
6 Marcs	a Rix-dollar	0	4	6
11 Marcs	a Ducat	0	8	3
14 Marcs	a Hatt Ducat	0	10	6

SWEDEN AND LAPLAND.

Stockholm, *Upſal*, &c. *Thorn*, &c.

		£.	s.	d.
† A Runſtic		0	0	0$\frac{7}{30}$
2 Runſticks =	a Stiver	0	0	0$\frac{7}{15}$
8 Runſticks	a Copper Marc	0	0	1$\frac{1}{2}$
3 Copper Marcs	a Silver Marc	0	0	4$\frac{1}{2}$

SWEDEN, &c.

		£.	s.	d.
4 Copper Marcs	a Copper Dollar	0	0	6$\frac{2}{3}$
9 Copper Marcs	a Caroline	0	1	2
3 Copper Dollars	a Silver Dollar	0	1	6$\frac{2}{3}$
3 Silver Dollars	a Rix-dollar	0	4	8
2 Rix-dollars	a Ducat	0	9	4

RUSSIA AND MUSCOVY.

Peterſburg, *Archangel*, &c. *Moſcow*, &c.

		£.	s.	d.
A Poluſca		0	0	0$\frac{27}{200}$
2 Poluſcas =	a Denuſca	0	0	0$\frac{27}{100}$
2 Denuſcas	†a Copec	0	0	0$\frac{27}{50}$
3 Copecs	an Altin	0	0	1$\frac{31}{50}$
10 Copecs	a Grievener	0	0	5$\frac{2}{5}$
25 Copecs	a Polpotin	0	1	1$\frac{1}{2}$
50 Copecs	a Poltin	0	2	3
100 Copecs	a Ruble	0	4	6
2 Rubles	a Xervonitz	0	9	0

EUROPE—SOUTHERN PARTS.

SWITZERLAND.

BASIL. *Zurich*, *Zug*, &c.

		£.	s.	d.
A Rap		0	0	0$\frac{1}{24}$
3 Rapin =	a Fening	0	0	0$\frac{1}{8}$
4 Fenings	a Cruitzer	0	0	0$\frac{1}{2}$
12 Fenings	†a Sol	0	0	1$\frac{1}{2}$
15 Fenings	a Coarſe Batzen	0	0	1$\frac{7}{8}$
18 Fenings	a Good Batzen	0	0	2$\frac{1}{4}$
20 Sols	†a Livre	0	2	6
60 Cruitzers	a Gulden	0	2	6
108 Cruitzers	a Rix-dollar	0	4	6

ST GALL. *Apenſal*, &c.

		£.	s.	d.
An Heller		0	0	0$\frac{1}{16}$
2 Hellers =	a Fening	0	0	0$\frac{1}{8}$
4 Fenings	a Cruitzer	0	0	0$\frac{1}{2}$
12 Fenings	†a Sol	0	0	0$\frac{1}{2}$
4 Cruitzers	a Coarſe Batzen	0	0	2
5 Cruitzers	a Good Batzen	0	0	2$\frac{1}{2}$
20 Sols	†a Livre	0	2	6
60 Cruitzers	a Gould	0	2	6
102 Cruitzers	a Rix-dollar	0	4	3

BERN. *Lucern*, *Neufchatel*, &c.

		£.	s.	d.
A Denier		0	0	0$\frac{1}{10}$
4 Deniers =	a Cruitzer	0	0	0$\frac{2}{5}$
3 Cruitzers	†a Sol	0	0	1$\frac{1}{5}$
4 Cruitzers	a Plapert	0	0	1$\frac{3}{5}$
5 Cruitzers	a Gros	0	0	2
6 Cruitzers	a Batzen	0	0	2$\frac{2}{5}$
20 Sols	†a Livre	0	2	0
75 Cruitzers	a Gulden	0	2	6
135 Cruitzers	a Crown	0	4	6

GENEVA. *Pekay*, *Bonne*, &c.

		£.	s.	d.
A Denier		0	0	0$\frac{1}{32}$
2 Deniers =	a Denier current	0	0	0$\frac{1}{16}$
12 Deniers	a Small Sol	0	0	0$\frac{3}{8}$
12 Deniers current	a Sol current	0	0	0$\frac{3}{4}$
12 Small Sols	†a Florin	0	0	4$\frac{1}{2}$
20 Sols current	†a Livre current	0	1	3
10$\frac{1}{2}$ Florins	a Patacon	0	3	11$\frac{1}{4}$
15$\frac{3}{4}$ Florins	a Croiſade	0	5	10$\frac{7}{8}$
24 Florins	a Ducat	0	9	0

FRANCE.

Liſle, Cambray, Valenciennes, &c.

		£.	s.	d.
A Denier		0	0	$0\frac{1}{24}$
12 Deniers	= a Sol	0	0	$0\frac{1}{2}$
15 Deniers	†a Patard	0	0	$0\frac{5}{8}$
15 Patards	†a Piette	0	0	$9\frac{3}{8}$
20 Sols	a Livre Tournois	0	0	10
20 Petards	†a Florin	0	1	$0\frac{1}{2}$
60 Sols	an Ecu of Ex.	0	2	6
$10\frac{1}{2}$ Livres	a Ducat	0	9	3
24 Livres	a Louis d'Or	1	0	0

Dunkirk, St Omers, St Quintin, &c.

A Denier		0	0	$0\frac{1}{24}$
12 Deniers	= a Sol	0	0	$0\frac{1}{2}$
15 Deniers	†a Patard	0	0	$0\frac{5}{8}$
15 Sols	†a Piette	0	0	$7\frac{1}{2}$
20 Sols	†a Livre Tournois	0	0	10
3 Livres	an Ecu of Ex.	0	2	6
24 Livres	a Louis d'Or	1	0	0
$25\frac{1}{2}$ Livres	a Guinea	1	1	0
$31\frac{1}{2}$ Livres	a Moeda	1	7	0

Paris, Lyons, Marſeilles, &c. Bourdeaux, Bayonne, &c.

A Denier		0	0	$0\frac{1}{24}$
3 Deniers	= a Liard	0	0	$0\frac{1}{8}$
2 Liards	a Dardene	0	0	$0\frac{1}{4}$
12 Deniers	a Sol	0	0	$0\frac{1}{2}$
20 Sols	†a Livre Tournois	0	0	10
60 Sols	an Ecu of Ex.	0	2	6
6 Livres	an Ecu	0	0	5
10 Livres	†a Piſtole	0	8	4
24 Livres	a Louis d'Or	1	0	0

PORTUGAL. *Liſbon, Oporto,* &c.

†A Re		0	0	$0\frac{27}{400}$
10 Rez	= a Half Vintin	0	0	$0\frac{27}{40}$
20 Rez	a Vintin	0	0	$1\frac{7}{20}$
5 Vintins	a Teſtoon	0	0	$6\frac{3}{4}$
4 Teſtoons	a Cruſade of Ex.	0	2	3
24 Vintins	a New Cruſade	0	2	$8\frac{2}{5}$
10 Teſtoons	a Milre	0	5	$7\frac{1}{2}$
48 Teſtoons	a Moeda	1	7	0
64 Teſtoons	a Joaneſe	1	16	0

SPAIN AND CATALONIA.

Madrid, Cadiz, Seville, &c. New Plate.

A Maravedie		0	0	$0\frac{43}{272}$
2 Maravedies	= a Quartil	0	0	$0\frac{43}{136}$
34 Maravedies	a Rial	0	0	$5\frac{3}{8}$
2 Rials	a Piſtarine	0	0	$10\frac{3}{4}$
8 Rials	†a Piaſtre of Ex.	8	3	7
10 Rials	a Dollar	0	4	6
375 Maravedies	†a Ducat of Ex.	1	4	$11\frac{1}{2}$
32 Rials	†a Piſtole of Ex.	0	14	4
36 Rials	a Piſtole	0	16	9

Gibraltar, Malaga, Denia, &c. Velon.

† A Maravedie		0	0	$0\frac{23}{272}$
2 Maravedies	= an Ochavo	0	0	$0\frac{23}{136}$
4 Maravedies	a Quartil	0	0	$0\frac{23}{68}$
34 Maravedies	†a Rial Velon	0	0	$2\frac{7}{8}$
15 Rials	†a Piaſtre of Ex.	0	3	7
512 Maravedies	a Piaſtre	0	3	7
60 Rials	†a Piſtole of Ex.	0	14	4

Gibralter, &c.

		£.	s.	d.
2048 Maravedies	a Piſtole of Ex.	0	1	9
70 Rials	a Piſtole	0	16	9

Barcelona, Saragoſſa, Valencia, &c. Old Plate.

A Maravedie		0	0	$0\frac{27}{128}$
16 Maravedies	= a Soldo	0	0	$5\frac{3}{8}$
2 Soldos	a Rial Old Plate	0	0	$6\frac{3}{4}$
20 Soldos	†a Libra	0	5	$7\frac{1}{2}$
24 Soldos	†a Ducat	0	6	9
16 Soldos	†a Dollar	0	4	6
22 Soldos	†a Ducat	0	6	$2\frac{1}{4}$
21 Soldos	†a Ducat	0	5	$10\frac{7}{8}$
60 Soldos	a Piſtole	0	16	9

ITALY.

GENOA, *Novi,* &c. CORSICA, *Baſtia,* &c.

A Denari		0	0	$0\frac{43}{1200}$
12 Denari	= a Soldi	0	0	$0\frac{43}{100}$
4 Soldi	a Chevalet	0	0	$1\frac{18}{25}$
20 Soldi	†a Lire	0	0	$8\frac{3}{5}$
30 Soldi	a Teſtoon	0	1	$0\frac{9}{10}$
5 Lires	a Croiſade	0	3	7
115 Soldi	†a Pezzo of Ex.	0	4	2
6 Teſtoons	a Genouine	0	6	2
20 Lires	a Piſtole	0	14	4

PIEDMONT, SAVOY, AND SARDINIA:

Turin, Chamberry, Cagliari, &c.

A Denari		0	0	$0\frac{1}{16}$
3 Denari	= a Quatrini	0	0	$0\frac{3}{16}$
12 Denari	a Soldi	0	0	$0\frac{3}{4}$
12 Soldi	†a Florin	0	0	9
20 Soldi	†a Lire	0	1	3
6 Florins	a Scudi	0	4	6
7 Florins	a Ducatoon	0	5	3
13 Lires	a Piſtole	0	16	3
16 Lires	a Louis d'Or	1	0	0

Milan, Modena, Parma, Pavia, &c.

A Denari		0	0	$0\frac{7}{192}$
3 Denari	= a Quatrini	0	0	$0\frac{7}{64}$
12 Denari	a Soldi	0	0	$0\frac{7}{16}$
20 Soldi	†a Lire	0	0	$8\frac{3}{4}$
115 Soldi	a Scudi current	0	2	$2\frac{1}{2}$
117 Soldi	†a Scudi of Ex.	0	4	3
6 Lires	a Philip	0	4	$4\frac{1}{2}$
22 Lires	a Piſtole	0	16	0
23 Lires	a Spaniſh Piſtole	0	16	9

Leghorn, Florence, &c.

A Denari		0	0	$0\frac{5}{144}$
4 Denari	= a Quatrini	0	0	$0\frac{5}{36}$
12 Denari	a Soldi	0	0	$0\frac{5}{12}$
5 Quatrini	a Craca	0	0	$0\frac{25}{36}$
8 Cracas	a Quilo	0	0	$5\frac{5}{9}$
20 Soldi	†a Lire	0	0	$8\frac{1}{3}$
6 Lires	a Piaſtre of Ex.	0	4	2
$7\frac{1}{2}$ Lires	a Ducat	0	5	$2\frac{1}{2}$
22 Lires	a Piſtole	0	15	6

ROME, *Civita Vechia, Ancona.*

A Quatrini		0	0	$0\frac{3}{16}$
4 Quatrini	= a Bayoc	0	0	$0\frac{3}{4}$
8 Bayocs	a Julio	0	0	6
10 Bayocs	a Stampt Julio	0	0	$7\frac{1}{2}$

ROME, &c.

		£.	s.	d.
24 Bayocs	a Teſtoon	0	1	6
10 Julios	a Crown current	0	5	0
12 Julios	a Crown ſtampt	0	6	0
18 Julios	†a Chequin	0	9	0
31 Julios	a Piſtole	0	15	6

NAPLES. *Gaieta, Capua,* &c.

A Quatrini	- -	0	0	0$\frac{2}{15}$
3 Quatrini =	a Grain	0	0	0$\frac{2}{5}$
10 Grains	a Carlin	0	0	4
40 Quatrini	a Paulo	0	0	5$\frac{1}{3}$
20 Grains	a Tarin	0	0	8
40 Grains	a Teſtoon	0	1	4
100 Grains	a Ducat of Ex.	0	3	4
23 Tarins	a Piſtole	0	15	4
25 Tarins	a Spaniſh Piſtole	1	16	9

SICILY AND MALTA. *Palermo, Meſſina,* &c.

A Pichila	- -	0	0	0$\frac{1}{30}$
6 Pichili =	a Grain	0	0	0$\frac{2}{15}$
8 Pichili	a Ponti	0	0	0$\frac{8}{30}$
10 Grains	a Carlin	0	0	1$\frac{7}{15}$
20 Grains	a Tarin	0	0	3$\frac{1}{15}$
6 Tarins	†a Florin of Ex.	0	1	6$\frac{6}{15}$
13 Tarins	a Ducat of Ex.	0	3	4
60 Carlins	†an Ounce	0	7	8$\frac{4}{15}$
2 Ounces	a Piſtole	0	15	4

Bologna, Ravenna, &c.

A Quatrini	- -	0	0	0$\frac{1}{30}$
6 Quatrini =	a Bayoc	0	0	0$\frac{1}{5}$
10 Bayocs	†a Julio	0	0	6
20 Bayocs	a Lire -	0	1	0
3 Julios	a Teſtoon	0	1	6
80 Bayocs	a Schudi of Ex.	0	4	3
105 Bayocs	a Ducatoon	0	5	3
100 Bayocs	a Crown	0	5	0
31 Julios -	a Piſtole	0	15	6

VENICE. *Bergbam,* &c.

A Picole	- -	0	0	0$\frac{1}{36}$
12 Picole =	a Soldi	0	0	0$\frac{1}{3}$
6$\frac{1}{2}$ Soldi	a Gros	0	0	2$\frac{1}{6}$
18 Soldi	a Jule -	0	0	6
20 Soldi	†a Lire -	0	0	6$\frac{2}{3}$
3 Jules	a Teſtoon	0	1	6
124 Soldi	a Ducat current	0	3	5$\frac{1}{3}$
24 Gros	†a Ducat of Ex.	0	4	4
17 Lires	a Chequin	0	9	2

TURKEY. *Morea, Candia, Cyprus,* &c.

A Mangar	- -	0	0	0$\frac{3}{10}$
4 Mangars =	an Aſper	0	0	1$\frac{1}{5}$
3 Aſpers	a Parac	0	0	1$\frac{4}{5}$
5 Aſpers	a Beſtic	0	0	3
10 Aſpers	an Oſtic	0	0	6
20 Aſpers	a Soloto	0	1	0
80 Aſpers	†a Piaſtre	0	4	0
100 Aſpers	a Caragrouch	0	5	0
10 Solatas	a Xeriff	0	10	0

ASIA.

ARABIA. *Medina, Mecca, Mocha,* &c.

A Carret	- -	0	0	0$\frac{1}{8}$
5$\frac{1}{4}$ Carrets =	a Caveer	0	0	0$\frac{21}{32}$
7 Carrets	a Comaſhee	0	0	0$\frac{7}{8}$

ARABIA, &c.

		£.	s.	d.
80 Carrets	a Larin	0	0	10$\frac{5}{8}$
18 Comaſhees	an Abyſs	0	1	4$\frac{1}{5}$
60 Comaſhees	†a Piaſtre	0	4	6
80 Caveers	a Dollar	0	4	6
100 Comaſhees	a Sequin	0	7	6
80 Larins	†a Tomond	3	7	6

PERSIA. *Iſpahan, Ormus, Combroon,* &c.

A Coz	- -	0	0	0$\frac{2}{5}$
4 Coz =	a Biſti -	0	0	1$\frac{3}{5}$
10 Coz	a Shahee	0	0	4
20 Coz	a Mamooda	0	0	8
25 Coz	a Larin	0	0	10
4 Shahees	an Abaſhee	0	1	4
5 Abaſhees	an Or -	0	8	7
12 Abaſhees	a Rovello	0	16	0
50 Abaſhees	†a Tomond	3	6	8

GUZZURAT. *Surat, Cambay,* &c.

A Pecka	- -	0	0	0$\frac{15}{64}$
2 Peckas =	a Pice -	0	0	0$\frac{15}{32}$
4 Pices	a Fanam	0	0	1$\frac{7}{8}$
5 Pices	a Viz -	0	0	2$\frac{11}{32}$
10 Pices	an Ana -	6	0	7$\frac{1}{2}$
4 Anas	a Rupee	0	2	6
2 Rupees	an Engliſh Crown	0	5	0
14 Anas	a Pagoda	0	8	9
4 Pagodas	a Gold Rupee	1	15	0

E. INDIES.

Bombay, Dabul, &c.

† A Budgrook	-	0	0	0$\frac{27}{800}$
2 Budgrooks =	†a Re -	0	0	0$\frac{27}{400}$
5 Rez	a Pice -	0	0	0$\frac{27}{80}$
16 Pices	a Laree	0	0	5$\frac{2}{5}$
20 Pices	a Quarter	0	0	6$\frac{3}{4}$
240 Rez	a Xeraphium	0	1	4$\frac{1}{5}$
4 Quarters	a Rupee	0	2	3
14 Quarters	a Pagoda	0	8	0
60 Quarters	a Gold Rupee	1	15	0

Goa, Viſapour, &c.

† A Re	- -	0	0	0$\frac{27}{400}$
2 Rez =	a Bazaraco	0	0	0$\frac{27}{200}$
2 Bazaracos	a Pecka	0	0	0$\frac{27}{100}$
20 Rez	a Vintin	0	0	1$\frac{7}{20}$
4 Vintins	a Laree	0	0	5$\frac{2}{5}$
3 Larces	a Xeraphim	0	1	4$\frac{1}{5}$
42 Tintins	a Tangu	0	4	6
4 Tangus	a Paru -	0	18	0
8 Tangus	a Gold Rupee	1	15	0

COROMANDEL. *Madraſs, Pondicherry,* &c.

A Caſh	- -	0	0	0$\frac{3}{80}$
5 Caſh =	a Viz -	0	0	0$\frac{3}{16}$
2 Viz	a Pice -	0	0	0$\frac{3}{8}$
6 Pices	a Pical -	0	0	1$\frac{1}{8}$
8 Pices	a Fanum	0	0	3
10 Fanums	a Rupee	0	2	6
2 Rupees	an Engliſh Crown	0	5	0
36 Fanams	a Pagoda	0	8	9
4 Pagodas	a Gold Rupee	1	15	0

BENGAL. *Callicut, Calcutta,* &c.

A Pice	- -	0	0	0$\frac{5}{12}$
4 Pices =	a Fanum	0	0	0 [illegible]

BENGAL, &c.

			L.	s.	d.
6 Pices	=	a Viz	0	0	0$\frac{15}{16}$
12 Pices		an Ana	0	0	1 $\frac{7}{8}$
10 Anas		a Piano	0	1	6 $\frac{3}{4}$
16 Anas		a Rupee	0	2	6
2 Rupees		a French Ecu	0	5	0
2 Rupees		an English Crown	0	5	0
56 Aanas		a Pagoda	0	8	9

SIAM. *Pegu, Malacca, Cambodia, Sumatra, Java, Borneo*, &c.

A Cori			0	0	0$\frac{1}{40000}$
800 Cori	=	a Fette	0	0	0 $\frac{1}{50}$
125 Fettees		a Sateleer	0	0	7 $\frac{1}{2}$
250 Fettees		a Sooco	0	1	3
500 Fettes		a Tutal	0	2	6
900 Fettees		a Dollar	0	4	6
2 Ticals		a Rial	0	5	0
4 Soocos		an Ecu	0	5	0
8 Sateleers		a Crown	0	5	0

CHINA. *Pekin, Canton*, &c.

A Caxa			0	0	0$\frac{2}{25}$
10 Caxa	=	a Candereen	0	0	0 $\frac{4}{5}$
10 Candereens		a Mace	0	0	8
35 Candereens		a Rupee	0	2	6
2 Rupees		a Dollar	0	4	6
70 Candereens		a Rix-Dollar	0	4	4 $\frac{4}{5}$
7 Maces		an Ecu	0	5	0
2 Rupees		a Crown	0	5	0
10 Maces		†a Tale	0	6	8

JAPAN. *Jeddo, Meaco*, &c.

A Piti			0	0	0 $\frac{1}{5}$
20 Pitis	=	a Mace	0	0	4
15 Maces		an Ounce Silver	0	4	10 $\frac{1}{5}$
20 Maces		a Tale	0	6	8
30 Maces		an Ingot	0	9	8 $\frac{4}{5}$
13 Ounces Silver		an Ounce Gold	3	3	0
2 Ounces Gold		a Japeneſe	6	6	0
2 Janpeneſes		a Double	14	12	0
21 Ounces Gold		†a Cattee	66	3	0

AFRICA.

EGYPT. *Old and New Cairo, Alexandria, Sayde*, &c.

An Aſper			0	0	0$\frac{5}{9}$
3 Aſpers	=	a Medin	0	0	1$\frac{2}{3}$
24 Medins		an Italian Ducat	0	3	4
80 Aſpers		†a Piaſtre	0	4	0
30 Medins		a Dollar	0	4	6
96 Aſpers		an Ecu	0	5	0
32 Medins		a Crown	0	5	0
200 Aſpers		a Sultanin	0	10	0
70 Medins		a Pargo Dollar	0	10	0

BARBARY. *Algiers, Tunis, Tripoli, Una*, &c.

An Aſper			0	0	0$\frac{5}{9}$
3 Aſpers	=	a Medin	0	0	1$\frac{2}{3}$
10 Aſpers		a Rial old Plate	0	0	6$\frac{1}{4}$
2 Rials		a Double	0	1	1$\frac{1}{2}$
4 Doubles		a Dollar	0	4	6
24 Medins		a Silver Chequin	0	3	4
30 Medins		a Dollar	0	4	6
180 Aſpers		a Zequin	0	8	10
15 Doubles		a Piſtole	0	16	9

MOROCCO. *Santa Cruz, Mequinez, Fez, Tangiers, Sallee*, &c.

			£.	s.	d.
A Fluce			0	0	0$\frac{1}{12}$
24 Fluces	=	a Blanquil	0	0	2
4 Blanquils		an Ounce	0	0	8
7 Blanquils		an Octavo	0	1	2
14 Blanquils		a Quarto	0	2	4
2 Quartos		a Medio	0	4	8
28 Blanquils		a Dollar	0	4	6
54 Blanquils		a Xequin	0	9	0
100 Blanquils		a Piſtole	0	16	9

AMERICA.

ENGLISH. *Jamaica, Barbadoes*, &c.

† Halfpenny			0	0	0$\frac{57}{160}$
2 Halfpence	=	†a Penny	0	0	0 $\frac{57}{80}$
7½ Halfpence		a Bit	0	0	5 $\frac{3}{8}$
12 Pence		†a Shilling	0	0	8 $\frac{11}{20}$
75 Pence		a Dollar	0	4	6
7 Shillings		a Crown	0	5	0
20 Shillings		†a Pound	0	14	3
24 Shillings		a Piſtole	0	16	9
30 Shillings		a Guinea	1	1	0

FRENCH. *St Domingo, Martinco*, &c.

† A Half Sol			0	0	0$\frac{117}{640}$
2 Half Sols	=	†a Sole	0	0	0$\frac{117}{320}$
7½ Sols		a Half Scalin	0	0	2 $\frac{11}{16}$
15 Sols		a Scalin	0	0	5 $\frac{3}{8}$
20 Sols		†a Livre	0	0	7 $\frac{5}{16}$
7 Livres		a Dollar	0	4	6
8 Livres		an Ecu	0	4	10 $\frac{1}{2}$
26 Livres		a Piſtole	0	16	9
32 Livres		a Louis d'Or	1	0	0

ENGLISH. *Nova Scotia, Virginia, New England*, &c.

† A Penny			0	0	1
12 Pence	=	†a Shilling	0	1	0
20 Shillings		†a Pound	1	0	0
2 Pounds					
3 Pounds					
4 Pounds					
5 Pounds					
6 Pounds					
7 Pounds					
8 Pounds					
9 Pounds					
10 Pounds					

The value of the Currency alters according to the Plenty or Scarcity of Gold and Silver Coins that are imported.

Canada, Florida, Cayena, &c.

† A Denier		
12 Deniers	=	†a Sol.
20 Sols		†a Livre.
2 Livres		
3 Livres		
4 Livres		
5 Livres		
6 Livres		
7 Livres		
8 Livres		
9 Livres		
10 Livres		

The value of the Currency alters according to the Plenty or Scarcity of Gold and Silver Coins that are imported.

Note. For all the *Spaniſh, Portugueſe, Dutch*, and *Daniſh* Dominions, either on the Continent or in the Weſt Indies, ſee the Moneys of the reſpective nations.

* MONEYBAG. *n. ſ.* [*money* and *bag.*] A large purſe.—

There is ſome ill a brewing towards my reſt,
For I did dream of *moneybags* to-night. *Shak.*

—My place was taken up by an ill-bred puppy, with a *moneybag* under each arm. *Guardian.*

* MONEYBOX. *n. ſ.* [*money* and *box.*] A till; repoſitory of ready coin.

MONEYBRIDGE, a town of Lincolnſhire, in the diſtrict of Holland.

* MONEYCHANGER. *n. ſ.* [*money* and *change*] A broker in money.—The uſurers or *moneychangers* being a ſcandalous employment at Rome, is a reaſon for the high rate of intereſt. *Arbuthnot.*

* MONEYED. *adj.* [from *money.*] Rich in money: often uſed in oppoſition to thoſe who are poſſeſſed of lands.—Invite *moneyed* men to lend to the merchants. *Bacon.*—If exportation will not balance importation, away muſt your ſilver go again, whether *moneyed* or not *moneyed.* *Locke.*—Several turned their money into thoſe funds, merchants as well as other *moneyed* men. *Swift.*—With theſe meaſures fell in all *monied* men. *Swift.*

* MONEYER. *n. ſ.* [*monneyer-eur*, Fr. from *money.*] 1. One that deals in money; a banker, 2. A coiner of money.

MONEYGALL, a town of Ireland, in King's County, Leinſter.

MONEYHORE, a town of Ireland, in the county of Wexford, Leinſter.

Money-Jobber, *n. ſ.* A dealer in money; one who lends it upon uſury; a pawn-broker. See Broker, § II, 2, 3.

* MONEYLESS. *adj.* [from *money.*] Wanting money; pennyleſs.—The ſtrong expectation of a good certain ſalary will outweigh the loſs by bad rents received out of lands in *moneyleſs* times. *Swift.*

* MONEYMATTER. *n. ſ.* [*money* and *matter.*] Account of debtor and creditor.—What if you and I Nick ſhould enquire how *moneymatters* ſtand between us. *Arbuthnot's John Bull.*

MONEYMORE, a town of Ireland, in the county of Derry and prov. of Ulſter, 83 miles from Dublin.

* MONEYSCRIVENER. *n. ſ.* [*money* and *ſcrivener.*] One who raiſes money for others.—Suppoſe a young unexperienced man in the hands of *moneyſcriveners;* ſuch fellows are like your wire-drawing mills, if they get hold of a man's finger, they will pull in his whole body at laſt. *Arbuthnot's John Bull.*

* MONEYSWORTH. *n. ſ.* [*money* and *worth.*] Something valuable; ſomething that will bring money.—There is either money or *moneyſworth* in all the controverſies of life. *L'Eſtrange.*

(1.) (*) MONEYWORT. *n. ſ.* A plant.

(2.) Moneywort is a ſpecies of Lysimachia.

MONFALCO, a town of Spain, in Catalonia, 5 miles NE. of Cervera.

(1.) MONFALCONO, a diſtrict of Friuli, 25 miles in circumference, containing 20 villages, and 4600 ſouls. It is watered by the Liſonzo and Timavo, and is fertile in corn and wine.

(2.) Monfalcono, a market town in the above diſtrict, containing 1200 inhabitants.

MONFAUCON, a town of France, in the dep. of Lot, 8 miles ESE. of Gourdon, and 17 NE. of Cahors.

MONFERRAN, a town of France, in the department of the Gers, 16 miles E. of Auch.

MONFERRAND, a town of France, in the depart. of Dordogne, 6 miles SW. of Belvez.

MONFLANQUIN, a town of France, in the depart. of Lot and Garonne; 20 miles N. of Agen and 24 E. of Marmande.

MONFORMOSO, a town of France, in the dep. of the Seſia, and late lordſhip of Vercelli, the ci-devant province of Piedmont, 8 miles NW of Vercelli.

(1—3.) MONFORTE, 3 towns of Portugal in the provinces of Alentejo, Beira, and Tras-los-montes.

(4, 5.) Monforte, 2 towns of Spain, in Galicia and Valencia.

(6.) Monforte, a town of Sicily, in Demona.

MONGALE, a town of Africa, in Mosambique, on an iſland, garriſoned by the Portugueſe; being their chief magazine for goods.

MONGALLO, a kingdom of Africa, N. of Monomotapa; with its capital, and a river of the ſame name, running into the Indian Ocean.

MONGAULT, Nicholas Hubert, an ingenious and learned Frenchman, and one of the beſt writers of his time, born at Paris in 1674. At 16 he entered the congregation of the oratory, and was afterwards ſent to Mans to learn philoſophy. Although Ariſtotle's was then the only one permitted to be taught, Mongault, with that ſpirit which uſually diſtinguiſhes men of abilities, ventured in a public theſis, to oppoſe the opinions of Ariſtotle, and to maintain thoſe of Des Cartes. Having ſtudied theology with the ſame ſucceſs, he quitted the oratory in 1699; and ſoon after went to Thoulouſe, and lived with Abp. Colbert, who had procured him a priory in 1698. In 1710 the regent duke of Orleans committed to him the education of his ſon the duke of Chartres. In 1711 he had the abbey of Chartreuſe given him, and that of Villeneuve in 1719. The duke of Chartres, becoming colonel general of the French infantry, appointed Mongault ſecretary general; made him ſecretary of the province of Dauphiny, and raiſed him to other conſiderable employments. In 1714, he publiſhed at Paris, in 6 vols. 12mo, an edition of Tully's Letters to Atticus, with an excellent French tranſlation, and judicious comment. In this work he has happily illuſtrated many paſſages which all the interpreters before him had given up as inexplicable. He publiſhed alſo a very good tranſlation of Herodian from the Greek; the beſt edition of which is that of 1745, in 12mo. He died at Paris in 1746. He was a member of the French academy, and of the academy of inſcriptions and belles lettres.

* MONGCORN. *n. ſ.* [*mang*, Saxon, and *corn.*] Mixed corn; as wheat and rye; miſcellane, or maſlin.

* MONGER. *n. ſ.* [*mangere*, Saxon, a trader: from *mangian*, Saxon, to trade.] A dealer; a ſeller. It is ſeldom or never uſed alone, or otherwiſe than after the name of any commodity, to expreſs a ſeller of that commodity: as, a *fiſhmonger;*

r; and ſometimes a medlar in any thing: as a [illegible]; a *newſmonger*.—Do you know me? e, excellent well, you are a fiſh-*monger*. *Shak.*—

Th' impatient ſtates-*monger*
Could now contain himſelf no longer.
Hudibras.

MONGHIR, a large town of Indoſtan, in Ba- r, with a fort. It was taken by the Britiſh in v. 1763. It is ſeated on the S. ſide of the Gan- ; 70 miles E. of Patna, according to Crutt- l.; but 110 SE. of Patna, according to Dr okes and J. Walker; and 275 NW. of Cal- a. Lon. 83. 30. E. Lat. 25. 15. N.

MONGIA, a town of Spain, in Galicia.

MONGIARDIA, a town of the Ligurian re- blic, 20 miles N. of Genoa.

MONGIE, a town of France, in the dep. of y de Dome, 6 miles SE. of Iſſoire.

MONGOLS, or MOGULS. See MOGULS.

MONGOOZ, in zoology. See LEMUR, N° 7.

* MONGREL. *adj.* [as *mongcorn*, from *mang*, n. or *mengen*, to mix, Dutch.] Of a mixed breed: mmonly written *mongrel* for *mangrel*.—

This zealot
Is of a *mongrel*, divers kind,
Clerick before, and lay behind. *Hudibras.*

Ye *mongrel* work of heav'n, with human ſhapes,
hat have but juſt enough of ſenſe to know
he maſter's voice. *Dryden.*

I'm but a half-ſtrain'd villain yet,
ut *mongrel* miſchievous. *Dryden.*

Baſe groveling, worthleſs wretches;
Mongrels in faction. *Addiſon.*

No fools of rank, or *mongrel* breed,
Who fain would paſs for lords indeed. *Swift.*

MONGUILLEM, a town of France, in the . of Gers, 8 miles NW. of Nogars, and 24 . of Condom.

MONGULS. See MOGULS. Dr Brookes pre- this ſpelling, but aſſigns no reaſon for it.

MONGUYON, a town of France, in the dep. Lower Charente, 3 miles SE. of Montlieu.

MONHEIM, 2 towns of Germany; 1. in Ba- ana, 28 miles W. of Ingoldſtadt: 2. in Berg, on the Rhine, 9 miles SE. of Duſſeldorf.

MONHEURET, a town of France, in the dep. of Lot and Garonne; 3 miles W. of Clairat.

MONJAUX, a town of France, in the dep. of Aveiron, 12 miles W. of Milhaud.

MONICEDAM. See MONIKEDAM.

(1.) MONIFIETH, a pariſh of Scotland, in the S. border of Forfarſhire; containing about [illegible]10 Scots acres, about a mile W. of the lighthouſe in the eſtuary of the Tay. The ſurface is partly hilly, partly level; the ſoil partly ſandy, partly rich black loam, but fertile: 1500 acres are in green crops, paſture and fallow; other 1500 under wheat, oats and barley; the reſt is either under wood, or unarable. Huſbandry is much improved. The population, in 1793, was 1218; decreaſe 103, ſince 1755. The number of black cattle was above 500, beſides a few ſheep. The higheſt of the hills called *Laws* is 133 yards long, 16 broad, and 316 in circumference. From its top may be ſeen Dundee, the coaſt of Fife, the Carſe of Gowrie, and the river Tay as it meanders to Perth, with a diſtant proſpect to the mountains of Argyleſhire: and on the S. and E. St Andrews Bay, the Lothian hills, Angus-ſhire to Arbroath, and the German Ocean. The *Dighty* runs through the pariſh. It has relics of vitrifications, and an ancient fort; beſides 3 villages; viz. *Drumſturdy Moor*, containing 132 ſouls, *Eaſt Ferry*, 230, and MONIFIETH: (See N° 2.) It has alſo ſeveral antiquities. See BROUGHTY, N° 1, 2.

(2.) MONIFIETH, a village in the above pariſh, containing 175 ſouls, in 1793. It has fairs on the 2d Tueſday after the 11th of June, and of Oct. and lies 7 miles NE. of St Andrews, 7½ E. of Dundee, and 9½ SW. of Arbroath. Lon. 2. 55. W. Lat. 56. 27. N.

MONIKEDAM, or MONIKENDAM, } a town of Holland, in the dep. of the Texel, and late prov. of N. Holland, on the Zuyder Zee: 3 miles S. of Edam, and 9 NE. of Amſterdam. Lon. 4. 56. E. Lat. 52. 29. N.

(1.) MONIKIE, a pariſh of Scotland in Forfarſhire, 6 miles long and 4 broad. Its form is triangular, one of its angles terminating in the ſandy deſart at the mouth of the Tay. The ſurface is diverſified by large hills. The climate and ſoil are very various. The S. part is fertile; the N. and NW. moiſt, cold, mooriſh, and covered with wood. The crops are wheat, flax, oats, and graſs. The population, in 1791, was 1278; decreaſe 67, ſince 1755; owing to the enlargement of farms, and "extermination of cottagers."

(2.) MONIKIE, a village in the above pariſh, containing about 150 ſouls in 1791.

(1.) MONIMAIL, a pariſh of Scotland in Fife-ſhire, *at the foot of a hill one mile over*, which is the meaning of the name in Gaelic, and is deſcriptive of its ſituation, near a riſing ground on the road between Cupar and Perth. Its figure is oval. The ſurface is flat; the ſoil fertile; the air dry and ſalubrious. A woman died lately aged 105. The population, in 1791, was 1101; increaſe 217 ſince 1755. Melvill houſe, the ſeat of the E. of Leven is in it. There is an ancient ſquare tower, which was repaired by Card. Bethune in 1562, with his effigies and arms carved in relievo. There is a mineral well, called *Cardan's Well*, from Dr CARDAN, who uſed it much, and cured Hamilton, Abp. of St Andrews of a dropſy with it. There are 6 mills in the pariſh. The chief crops are wheat, barley, hay, and turnips. Sheep and black cattle are reared.

(2.) MONIMAIL, a village in the above pariſh. It has a conſiderable fair in June.

* MONIMENT. *n. ſ.* [from *moneo*, Latin.] It ſeems here to ſignify inſcription.—

Some others were driven and diſtent
Into great ingots and to wedges ſquare,
Some in round plates withouten *moniment*.
F. Queen.

MONJOY, a town of France, in the department of the Roer, and late duchy of Juliers, 19 miles S. of Juliers. Lon. 23. 53. E. of Ferro. Lat. 50. 39. N.

* *To* MONISH. *v. a.* [*moneo*, Latin.] To admoniſh, of which it is a contraction.—*Moniſh* him gently, which ſhall make him both willing to amend, and glad to go forward in love. *Aſcham.*

* MONISHER. *n. ſ.* [from *moniſh*.] An admoniſher; a monitor.

MONISTROL, a town of France, in the dep. of the Upper Loire, 20 miles NE. of Puy.

* MONITION. *n. ſ.* [*monitio*, Lat. *monition*, Fr.] 1. Information; hint.—We have no viſible *monition* of the returns of any other periods, ſuch as we have of the day, by ſucceſſive light and darkneſs. *Holder on Time.* 2. Inſtruction; document.—Unruly ambition is deaf, not only to the advice of friends, but to the counſels and *monitions* of reaſon itſelf. *L'Eſtrange.*—

Then after ſage *monitions* from his friends,
His talents to employ for nobler ends,
He turns to politicks his dang'rous wit. *Swift.*

* MONITOR. *n. ſ.* [Lat.] One who warns of faults, or informs of duty; one who gives uſeful hints. It is uſed of an upper ſcholar in a ſchool commiſſion'd by the maſter to look to the boys in his abſence.—You need not be a *monitor* to the king. *Bacon.*—It was the privilege of Adam innocent to have theſe notions alſo firm and untainted, to carry his *monitor* in his boſom. *South.*—We can but divine who it is that ſpeaks; whether Perſius himſelf, or his friend and *monitor*, or a third perſon. *Dryden.*—The pains that come from the neceſſities of nature, are *monitors* to us to beware of greater miſchiefs. *Locke.*

(1.) * MONITORY. *adj.* [*monitoire*, Fr. *monitorius*, Lat.] Conveying uſeful inſtruction; giving admonition.—Loſſes, miſcarriages and diſappointments, are *monitory* and inſtructive. *L'Eſtrange.*—He is ſo taken up ſtill, in ſpite of the *monitory* hint in my eſſay, with particular men, that he neglects mankind. *Pope.*

(2.) * Monitory. *n. ſ.* Admonition; warning.—A king of Hungary took a biſhop in battle, and kept him priſoner; whereupon the pope writ a *monitory* to him, for that he had broken the privilege of holy church. *Bacon.*

MONITOU, two iſlands of the United States, in lake Michigan.

(1.) MONIVAIRD, [Gael. *Ma'vard*, i. e. the plain of Bards.] a pariſh of Perthſhire, united to that of Strowan, about 1640. Theſe united pariſhes are ſituated in Stratherne; are about 8 miles long from N. to S. and 6 broad. Their general appearance is romantic. The Erne meanders through them, and the Grampians cloſe the proſpect on the N. The ſoil is moſtly rich, light, gravelly, and fertile. The chief crops are oats, barley, peas, potatoes, and lint. The climate is ſalubrious. The higheſt mountain is *Benchonzie*, which is 2922 feet above the ſea-level, and has a cluſter of ſmall conical hills near its baſe on the E. Its ſummit has about 40 acres covered with moſs. All kinds of wood thrive well, eſpecially oak. Eagles and falcons of the beſt kind are numerous: a pair of theſe laſt was preſented to his majeſty at his coronation by the late D. of Atholl. The population, in 1791, was 1025; decreaſe 435 ſince 1755; owing to the accumulation of ſmall farms. The number of horſes was 240; of ſheep 5000; and of black cattle 950. Col. Dow, author of the celebrated *Hiſtory of Hindoſtan*, was born in this pariſh.

(2.) Monivaird, a lake in the above pariſh, which covers 30 acres at the bottom of a fine wood, and contains pikes, perches, eels, &c. It affords excellent marl. The ruins of an ancient caſtle, on a riſing ground which projects into the middle of the lake, occaſion a fine echo.

(1.) * MONK. *n. ſ.* [*monec*, Saxon; *monachus*, Lat. μοναχος.] One of a religious community bound by vows to certain obſervances.—

'Twould prove the verity of certain words,
Spoke by a holy *monk*. *Shak.*

—Abdemeleck, as one weary of the world, gave over all, and betook himſelf to a ſolitary life, and became a melancholy Mahometan *monk*. *Knolles.*

The droniſh *monks*, the ſcorn and ſhame of manhood,
Rouſe and prepare once more to take poſſeſſion,
And neſtle in their ancient hives again. *Rowe.*

—*Monks*, in ſome reſpects, agree with regulars, as in the ſubſtantial vows of religion; but in other reſpects, *monks* and regulars differ; for that regulars, vows excepted, are not tied up to ſo ſtrict a rule of life as *monks* are. *Ayliffe.*

(2.) Monk anciently denoted, "a perſon who retired from the world to give himſelf up wholly to God, and to live in ſolitude and abſtinence." The original word μοναχος, *ſolitary*, is derived from μονος, *alone.* The perſecutions which attended the firſt ages of the Goſpel forced ſome Chriſtians to retire from the world, and live in deſarts and places moſt private and unfrequented, in hopes of finding that peace and comfort among beaſts which were denied them among men. And this being the caſe of ſome very extraordinary perſons, their example gave ſo much reputation to retirement, that the practice was continued when the reaſon of its commencement ceaſed. After the empire became Chriſtian, inſtances of this kind were numerous; and thoſe, whoſe ſecurity had obliged them to live in ſolitude, became afterwards united into ſocieties. The myſtic theology alſo, which gained ground towards the cloſe of the 3d century, contributed to produce the ſame effect, and to drive men into ſolitude for the purpoſes of enthuſiaſtic devotion. St Cyril of Alexandria, in one of his letters, cenſures certain monks in Egypt, who, under pretence of devoting themſelves to prayer, led a lazy ſcandalous life;—a cenſure juſtly applicable to monks in general. The ancient monks were diſtinguiſhed into *ſolitaries*, *cœnobites*, and *ſarabaites.* The *ſolitary* were thoſe who lived alone, remote from all towns, as do ſtill ſome of the hermits.—The COENOBITES were thoſe who lived in community with others in the ſame houſe, and under the ſame ſuperiors. (See Coenobite.) The SARABAITES were ſtrolling monks, having no fixed rule or reſidence.—The houſes of monks again were of two kinds, viz. *monaſteries* and *lauræ.* See Laura, N° 1. and Monastery. Thoſe we now call monks are cœnobites, who live together in a monaſtery, who make vows of living according to a certain rule eſtabliſhed by the founder, and wear a habit which diſtinguiſhes their order. Thoſe that are endowed, or have a fixed revenue, are moſt properly called monks; as the Chartreux, Benedictines, Bernardines, &c. The Mendicants, or thoſe that beg as the Capuchins and Franciſcans, are more properly called *religious* and *friars;* though the names are frequently confounded. The firſt monks were thoſe of St Anthony; who, in the 4th century, formed them into a regular body, engaged them to live in ſociety with each other, and preſcribed to them fixed rules for the direction of their conduct. (See ANTHONY, N° 3.) Theſe regulations, which Anthony had made in Egypt, were ſoon introduced into Paleſtine and Syria by his diſciple Hilarion. Almoſt about the ſame time, Aones and Eugenius, with their companions Gaddanas and Azyzas, inſtituted the monaſtic order in Meſopotamia and the adjacent countries; and their example was followed with ſuch rapid ſucceſs, that in a ſhort time the whole eaſt was filled with a lazy ſet of mortals, who, abandoning all human connections, advantages, pleaſures, and concerns, wore out a languiſhing and miſerable life amidſt the hardſhips of want, and various kinds of ſuffering, in order (as they pretended,) to arrive at a more cloſe and rapturous communication with God and angels. From the eaſt this gloomy inſtitution paſſed into the weſt, and firſt into Italy and its iſlands; though it is uncertain who tranſplanted it thither. St Martin, Bp. of Tours, erected the firſt monaſteries in Gaul, and recommended this religious ſolitude with ſuch efficacy, that his funeral is ſaid to have been attended by no fewer than 2000 monks. From hence the monaſtic diſcipline extended through the other countries of Europe. There were beſides the monks of St Baſil (called in the eaſt *Calogeri*, from καλος γερων, *good old man*) and thoſe of St Jerom, the hermits of St Auguſtine, and afterwards thoſe of St Benedict and St Bernard; at length came thoſe of St Francis and St Dominic, with a legion of others. See BENEDICTINES, CALOGERI, &c. Towards the cloſe of the 5th century, the monks, who had formerly lived only for themſelves in ſolitary retreats, and had never thought of aſſuming any rank among the ſacerdotal order, were now gradually diſtinguiſhed from the populace, and endowed with ſuch opulence and honourable privileges, that they found themſelves in a condition to claim an eminent ſtation among the ſupports and pillars of the Chriſtian community. The fame of their piety and ſanctity was ſo great, that biſhops and preſbyters were often choſen out of their order; and the paſſion of erecting edifices and convents, in which the monks and holy virgins might ſerve God in the moſt commodious manner, was at this time carried beyond all bounds. However, their licentiouſneſs, even in this century, was become proverbial, and they excited the moſt dreadful tumults and ſeditions in various places. The monaſtic orders were at firſt under the immediate juriſdiction of the biſhops, from which they were exempted by the Roman pontiff about the end of the 7th century; and the monks, in return, devoted themſelves wholly to advance the intereſts and to maintain the dignity of the biſhop of Rome. This immunity which they obtained was a fruitful ſource of licentiouſneſs and diſorder, and occaſioned the greateſt part of the vices with which they were afterwards ſo juſtly charged. In the 8th century the monaſtic diſcipline was extremely relaxed both in the eaſtern and weſtern provinces, and all efforts to reſtore it were ineffectual. Nevertheleſs, this kind of inſtitution was in the higheſt eſteem; and nothing could equal the veneration that was paid, about the cloſe of the 9th century, to ſuch as devoted themſelves to the ſacred gloom and indolence of a convent. This veneration induced ſeveral kings and emperors to call them to their courts, and to employ them in civil affairs of the greateſt moment. Their reformation was attempted by Lewis the Meek, but the effect was of ſhort duration. In the 11th century they were exempted by the popes from the authority of their ſovereigns, and new orders of monks were continually eſtabliſhed; inſomuch that in the council of Lateran, held in 1215, a decree was paſſed, by the advice of Innocent III. to prevent any new monaſtic inſtitutions; and ſeveral were ſuppreſſed. In the 15th and 16th centuries, it appears, from the teſtimonies of the beſt writers, that the monks were generally lazy, illiterate, profligate, and licentious Epicureans, whoſe views in life were confined to opulence, idleneſs, and pleaſure. However, the Reformation had a manifeſt influence in reſtraining their exceſſes, and rendering them more circumſpect in their external conduct. Monks are diſtinguiſhed by the colour of their habits into *black*, *white*, *grey*, &c. Some are called *monks of the choir*, others *profeſſed monks*, and others *lay monks;* which laſt are deſtined for the ſervice of the convent, and have neither clericate nor literature. *Cloiſtered Monks* are thoſe who actually reſide in the houſe; in oppoſition to *extra* monks, who have benefices depending on the monaſtery. Monks are alſo diſtinguiſhed into *reformed*, whom the civil and eccleſiaſtical authority have made maſters of ancient convents, and put in their power to retrieve the ancient diſcipline, which had been relaxed; and *ancient*, who remain in the convent, to live in it according to its eſtabliſhment at the time when they made their vows, without obliging themſelves to any new reform. Anciently the monks were all laymen, and were only diſtinguiſhed from the reſt of the people by a particular habit and an extraordinary devotion. Not only the monks were prohibited the prieſthood, but even prieſts were expreſsly prohibited from becoming monks, as appears from the letters of St Gregory. Pope Syricius was the firſt who called them to the clericate, on occaſion of ſome great ſcarcity of prieſts, that the church was then ſuppoſed to labour under: and ſince that time, the prieſthood has been uſually united to the monaſtical profeſſion.

(3.) MONK, George, the principal agent in reſtoring the Britiſh monarchy, in the perſon of K. Charles II. was deſcended from a very ancient family, and born in Devonſhire in 1608. He dedicated himſelf to arms from his youth, and obtained a pair of colours in the expedition to the Iſle of Rhée: he ſerved afterwards in the Low Countries with reputation in both K. Charles's northern expeditions; and did ſuch ſervice in quelling the Iriſh rebellion, that he was appointed governor of Dublin, but was ſuperſeded by the parliament. Being made major-general of the Iriſh brigade employed in the ſiege of Nantwich in Cheſhire, he was taken priſoner by Sir Thomas Fairfax, and remained confined in the Tower of London until 1646; when, to procure his liberty, he took the covenant, and accepted a command in the Iriſh ſervice under the parliament. He obtained the command in chief of all the parliamentary forces in the north of Ireland, where he did ſignal ſervices, until he was called to account for a treaty made with the Iriſh rebels. But he ſerved in Scotland under Oliver Cromwell with ſuch ſucceſs, that he was left there as commander in chief; and he was one of the commiſſioners for uniting that kingdom with the commonwealth. He ſerved at ſea alſo againſt the Dutch; and was treated ſo kindly on his return, that Oliver is ſaid to have grown jealous of him. He was, however, again ſent to Scotland as commander in chief, and continued there five years: when he diſſembled ſo well, and improved circumſtances ſo dextrouſly, that he reſtored the king without any diſturbance; for which he was duly rewarded. (See England, § 54.) He was created D. of Albemarle, with a grant of 7000l. *per annum* eſtate, beſide other emoluments. After his death in 1670, there was publiſhed a treatiſe compoſed by him while he was priſoner in the Tower, entitled, "Obſervations on Military and Political Affairs," folio.

(4.) Monk, the hon. Mrs, daughter of Lord Moleſworth, and wife of George Monk, Eſq; was eminently ſkilled in the Latin, Italian, and Spaniſh languages, and had an uncommon genius for poetry. Her *Poems* were publiſhed in 1716. She died in 1715.

* MONKERY. *n. ſ.* [from *monk.*] The monaſtick life. Neither do I meddle with their evangelical perfection of vows, nor the inconveniences of their *monkery. Hall.*

(1.) * MONKEY. *n. ſ.* [*monikin*, a little man.] 1. An ape; a baboon; a jackanapes. An animal bearing ſome reſemblance of man.—One of them ſhewed me a ring that he had of your daughter for a *monkey:* Tubal, it was my turquoiſe; I would not have given it for a wilderneſs of *monkeys. Shak.*—More new-fangled than an ape: more giddy in my deſires than a *monkey. Shak.*—Other creatures, as well as *monkeys*, deſtroy their young ones by ſenſeleſs fondneſs. *Locke.*—

With glittering gold and ſparkling gems they
ſhine,
But apes and *monkeys* are the gods within.
Granville.

2. A word of contempt, or ſlight kindneſs.—This is the *monkey's* own giving out; ſhe is perſuaded I will marry her. *Shak.*—Poor *monkey!* how wilt thou do for a father? *Shak.*

(2.) Monkey. (§ 1, *def.* 1.) See Ape and Simia.

Monkey Flower. See Mimulus.

Monk-Fish. See Squalus.

* MONKHOOD. *n. ſ.* [*monk* and *hood.*] The character of a monk. He had left off his *monkhood* too, and was no longer obliged to them. *Atterbury.*

* MONKISH. *adj.* [from *monk.*] Monaſtick; pertaining to monks; taught by monks.—Thoſe publick charities are a greater ornament to this city than all its wealth, and do more real honour to the reformed religion, than redounds to the church of Rome from all thoſe *monkiſh* and ſuperſtitious foundations of which ſhe vainly boaſts. *Atterbury.*

Riſe, riſe, Roſcommon, ſee the Blenheim muſe
The dull conſtraint of *monkiſh* rhyme refuſe.
Smith.

(I.) MONKLAND, a ſmall town or village of Scotland, in Lanarkſhire, in the pariſh of Old Monkland, (See N° 2.) 8 miles E. of Glaſgow.

(II.) Monkland, an extenſive diſtrict of Lanarkſhire, originally forming only one pariſh, ſo named from the *Monks* of Newbottle. But a part of it being, about 1640, erected into a ſeparate pariſh, called *New* or *Eaſt Monkland*, the remainder of the diſtrict was named *Old* or *Weſt Monkland.* (See N° 1 and 2.) The heritors and elders in both elect the miniſters, with great unanimity.

1. Monkland, East, or } a pariſh of Lanark-
1. Monkland, New, } ſhire, in the diſtrict of the *Middle Ward*, 10 miles long from E. to W. and 7 broad in the middle, but narrower at both ends. Though it is conſiderably above the ſea level, it has no hills nor mountains. The whole is a beautiful champaign country. The ſoil is various but fertile in good ſeaſons. Oats and flax are the chief crops, but all other crops are cultivated. Sheep and black cattle are reared. Free-ſtone, coals and iron-ſtone abound. The roads are good. The population in 1792 was 3560; increaſe 847, ſince 1755. The chief manufactures are iron-founding, and diſtilleries of ſpirits and ale. There are 6 lint and 7 corn mills. The rev. Clement Cruttwell, in his *Univerſal Gazetteer*, makes *New* and *Old Monkland two towns* of Scotland, but he is quite miſtaken; for Mr William Mack, in his Statiſtical Account of this pariſh, expreſsly ſays, "The village or *town* of *Airdrie*, (built on the property of the Miſſes Aitchiſons of Rochfolloch and Airdric,) is the *only one* in the pariſh, and ſtands near the SW. extremity, on a riſing ground, regularly built, with wide ſtreets, a mile in length from E. to W. In 1792, there were 1762 ſouls in it." *Stat. Acc.* Vol. VII. p. 276.

2. Monkland, Old, or } a pariſh of Lanark-
2. Monkland, West, } ſhire W. of Eaſt Monkland, 10 miles long, and 3½ broad. The ſoil is of 3 kinds; 1. a ſtrong clay along the banks of the Clyde and Calder for 10 miles: 2. a light ſand; both theſe ſoils are very fertile; 3. tracks of moſs in the N.—Huſbandry is vaſtly improved, and rich crops of every grain are produced. The climate is ſalubrious, and the pariſh "appears like an immenſe garden." Natural wood abounds, and above 1000 acres are planted. The population, in 1792, was 4000 and had increaſed 2187 ſince 1755. Of theſe 400 were weavers; about 70 were employed in a pottery and brick and tyle works; 50 at the bleachfields; 300 at the Clyde iron-works; and 435 at the collieries. All theſe manufactures, but eſpecially the coal trade, have been greatly benefited by the erection of the *Monkland Canal*, from Monkland to Glaſgow, and the Clyde and Calder; for which an act was paſſed in 1770, and the canal completed in 1793, by the ſpirit and perſeverance of Meſſrs Stirlings. Its greateſt height above the ſea level is 273 feet; it is 15 feet wide at the bottom, and 30 at the ſurface: It joins the Great Canal at Port Dundas, 13 miles E. of Glaſgow.

MONKLOVA, or Monclova, a town of New Leon, SE. of Conchos.

Monks-head, a ſpecies of Leontodon.

(1.) *

(1.) * MONK's-HOOD. *n.ſ.* [*conſolida regalis.*] A plant. *Ainſ.*

(2.) MONK's-HOOD. See ACONITUM, N° 1, 7, 8, and 9.

(1.) * MONK's-RHUBARB. *n.ſ.* A ſpecies of dock: its roots are uſed in medicine.

(2.) MONK's-RHUBARB. See RUMEX, N° 2.

MONKSTOWN, 2 towns of Ireland: 1. in Dublin, 5 miles from Dublin: 2. in Cork, near Cove.

(1.) MONKTON, a townſhip of Nova Scotia, in Annapolis county, inhabited by Acadians and New Englanders; ſeated on the baſin of Annapolis and St Mary's Bay.

(2.) MONKTON, a townſhip of Vermont, in Addiſon county, E. of Ferriſburgh; containing 450 citizens in 1797.

(1.) MONKTOWN, a village of Scotland, in Ayrſhire, in the pariſh of Monktown and Preſtick, about a mile from the ſea-coaſt; containing 34 houſes, and 46 families, in 1793. The church is very ancient, there being no record or tradition when it was built. The walls are 3 feet 6 inches thick, and the W. gabel 3 feet 10. The celebrated patriot Sir W. WALLACE had a prophetic dream in or near it, as recorded by his biographers, John Blair and Blind Harry.

(2.) MONKTOWN AND PRESTICK, the conjunct name of a pariſh of Scotland, in Ayrſhire, 3½ miles long from N. to S. and from 1½ to 3 broad. As the village of MONKTOWN and burgh of PRESTICK have each a diſtinct church, both uſed till lately, Monktown and Preſtick appear to have been anciently ſeparate pariſhes, but there is no record of their union. This pariſh formerly extended to the river Ayr, and comprehended the pariſh of NEWTON, but the latter was disjoined in 1779. The ſoil is various but fertile, producing excellent crops of oats, barley, rye, &c. The population, in 1793, was 717: in 1755 it was 1163: allowing one half of theſe for Newton, the increaſe is 135.

MONLEON, a town of France, in the dep. of the Upper Pyrenees, 21 miles E. of Tarbes.

MONLIRAS, a town of Cuba, 45 miles E. of Bayamo.

MONLUCON. See MONT-LUZON.

(1.) MONMOUTH, James, duke of, ſon of K. Charles II. by Mrs Lucy Walters, was born at Rotterdam in 1649. Upon the Reſtoration, he was called over to England, created earl of Orkney, and afterwards of Monmouth, and took his ſeat in the houſe of peers. He married Anne, the heireſs of Francis earl of Buccleugh; and hence he had alſo the title of *Buccleugh*, and took the ſurname of *Scott*. In 1668 his father made him captain of his life-guard of horſe; and in 1672 he attended the French king in the Netherlands, and gave proofs of bravery and conduct. In 1673 the king of France made him lieutenant-general of his army, with which he came before Maeſtricht, and behaved with incredible gallantry, being the firſt who entered it himſelf. He returned to England, was received with all poſſible reſpect, and was made chancelor of the univerſity of Cambridge. After this he went to aſſiſt the prince of Orange to raiſe the ſiege of Mons, and contributed much towards it. He returned to England; and was ſent, in quality of his father's general, to quell an inſurrection in Scotland, which he effected: but ſoon after he fell into diſgrace; but, being a Proteſtant, he was deluded into ambitious ſchemes, upon the hopes of the excluſion of the duke of York: he conſpired againſt his father and the duke: and when the latter came to the throne, he openly appeared in arms, encouraged by the Proteſtant army; but coming to a deciſive battle before he had ſufficient forces to oppoſe the royal army, he was defeated, taken ſoon after concealed in a ditch, tried for high treaſon, cendemned, and beheaded in 1685, aged 36. See ENGLAND, § 58—60.

(2.) MONMOUTH, Geoffrey of. See GEOFFREY.

(3.) MONMOUTH, Earl of. See MORDAUNT.

(4.) MONMOUTH, the capital of Monmouthſhire, 129 miles from London. It has its name from its ſituation at the conflux of the Monnow or Mynwy, and the Wye, over each of which it has a bridge, and a third over the Frothy. Here was a caſtle in the time of William I. which Henry III. took from John Baron of Monmouth. It afterwards came to the houſe of Lancaſter, who beſtowed many privileges upon the town. Here Henry V. was born. It is a populous and well built place, and carries on a conſiderable trade with Briſtol by the Wye. It has a weekly market, and 3 fairs; and lies 21 miles W. of Glouceſter, and 128 W. by N. of London. Lon. 2. 46. W. Lat. 51. 49. N.

(5.) MONMOUTH, a large maritime county of New Jerſey, of a triangular form; 80 miles long, and from 25 to 40 broad: bounded on the N. by Rariton bay, NW. by Middleſex county, SW. by Burlington, and E. by the ocean. It is divided into 6 townſhips, and, in 1795, contained 15,322 citizens, and 1596 ſlaves.

(6.) MONMOUTH, or FREEHOLD, the capital of the above county. See FREEHOLD, N° 4.

(7.) MONMOUTH, a poſt town of Maine, in Lincoln county, on the E. bank of the Androſcoggin, 5 miles W. of Winthrop, and 180 N. by E. of Boſton.

(8, 9.) MONMOUTH, a cape and iſland in the Straits of Magellan.

(10.) MONMOUTH, or MONMOUTHSHIRE, } a county of England; anciently reckoned a part of Wales, but in Charles II.'s reign erected into a county, and added to the Oxford circuit. It is bounded on the N. by Herefordſhire, on the E. by Glouceſterſhire, on the S. by the Severn, and on the W. by the Welch counties of Brecknock and Glamorgan. Its extent from N. to S. is about 30 miles, from E. to W. 26, and its circumference 110. Mr Cruttwell makes it only 28 miles long and 20 broad: Dr Brookes and J. Walker only 24 by 20. It is ſubdivided into ſix hundreds; and contains 7 market towns, 147 pariſhes, about 6494 houſes, 30,900 inhabitants; and ſends 3 members to parliament, one for Monmouth, and two for the county. The air is temperate and healthy; and the ſoil fruitful, though mountainous and woody. The hills feed ſheep, goats, and horned cattle; and the valleys produce plenty of graſs and corn. This county is well watered; beſides the Wye, which parts it from Glouceſterſhire, the Mynow, which runs between it and Herefordſhire, and the Rumney, which divides

vides it from Glamorganſhire, it has, peculiar to itſelf, the Uſk, which enters it above Abergavenny, runs moſtly S. and falls into the Severn by the mouth of the Ebwith; which laſt runs from N. to S. in the W. ſide of the county. All theſe rivers, eſpecially the Wye and Uſk, abound with fiſh, particularly ſalmon and trouts.

MONNIERES, a town of France, in the dep. of the Lower Loire; 4½ miles NW. of Cliſſon.

MONNIERIA, in botany, a genus of the pentandria order, belonging to the diadelphia claſs of plants; and in the natural method ranking under the 24th order, *Corydales*.

MONNIGAFF. See MINNIGAFF.

MONNOW, MUNNOW, or MYNWY, a river of England, which ſeparates Monmouthſhire from Herefordſhire, and runs into the Wye at Monmouth.

(1.) MONNOYE, Bernard DE LA, an eminent French writer, born at Dijon in 1641. He was a man of great learning, was admirably formed for poetry, and gained ſome of the firſt prizes inſtituted by the French academy, till he diſcontinued to write for them at their own ſolicitation; a circumſtance which reflects the higheſt honour on him. All his pieces are in a moſt exquiſite taſte; and he was equally ſkilful in Latin and French poetry. Menage and Bayle beſtowed the higheſt encomiums on his Latin poetry. His Greek and Italian poems are likewiſe very good. He had alſo a very accurate and extenſive knowledge of the languages; great ſkill in criticiſm, and hiſtory, ancient and modern. He wrote Remarks on the *Menagiana;* in the laſt edition of which, in 4 vols. 12mo, printed in 1715, are ſeveral pieces of his poetry, and a curious diſſertation on the book *De tribus impoſtoribus*. His Diſſertation on *Pomponius Lætus* is inſerted in Baillet's *Jugemens des ſçavans*, in 1722, with remarks and corrections by La Monnoye. He alſo embelliſhed the *Anti-Baillet* of Menage with many corrections and notes. He was of great ſervice to the republic of letters, not only by productions of his own, but by freely aſſiſting upon all occaſions the learned of his time. He favoured Boyle with many curious particulars for his Dictionary, and was highly applauded by him. He died at Paris, Oct. 15. 1728, in his 88th year. —Mr De Sallinger publiſhed at the Hague A Collection of his Poems, with his eulogium. He alſo left behind him a Collection of Letters, moſtly critical; ſeveral curious Diſſertations; 300 Select Epigrams from Martial, and other poets, in French verſe; and ſeveral other works in proſe and verſe, in French, Latin, and Greek.

(2.) MONNOYE, a town of France, in the dep. of the Indre and Loire; 6 miles N. of Tours.

MONNOYER, John Baptiſt, "one of the greateſt maſters (according to Mr Walpole) that has appeared for painting flowers. They are not ſo exquiſitely finiſhed as Van Huyſum's, but his colouring and compoſition are in a bolder ſtyle." He was born at Liſle in 1635; and educated at Antwerp. Going to Paris in 1663, he was received into the academy with applauſe; was employed at Verſailles, Trianon, Marly, and Meudon; and painted in the hotel de Bretonvilliers at Paris, &c. The duke of Montague brought him to England; where much of his hand is to be ſeen at Montague-houſe, Hampton-court, the duke of St Alban's at Windſor, Kenſington, Lord Carliſle's, Burlington-houſe, &c. But his moſt curious work is a looking-glaſs at Kenſington palace, which he adorned with flowers for Q. Mary II, who honoured him with her preſence nearly the whole time he was buſied in the performance. He went ſeveral times to France, where his daughter had married a French painter. He died in Pall-mall in 1699. His ſon Antony, improperly called *young Baptiſt*, painted in his father's manner, and had merit.

MONOCACY, a river of Maryland, which runs a SSW. courſe, and falls into the Potomack, 50 miles above Georgetown.

(1.) MONOCEROS, unicorn, in aſtronomy, a ſouthern conſtellation formed by Hevelius, containing in his catalogue 19 ſtars, and in the Britannic catalogue 31.

(2.) MONOCEROS, in zoology. See MONODON.

(1.) * MONOCHORD. *n. ſ.* [μον[illegible] and χορδη.] 1. An inſtrument of one ſtring: as, the trumpet marine. *Harris*. 2. A kind of inſtrument anciently of ſingular uſe for the regulating of ſounds: the ancients made uſe of it to determine the proportion of ſounds to one another. When the chord was divided into two equal parts, ſo that the terms were as one to one, they called them uniſons; but if as two to one, they called them octaves or diapaſons; when they were as 3 to 2, they called them fifths or diapentes; if they were as 4 to 3, they called them fourths or diateſſerons; if as 5 to 4, they called it diton, or a tierce major; but if as 6 to 5, then they called it a demi diton, or a tierce minor; and laſtly, if the terms were as 24 to 25, they called it a demiton or dieze; the *monochord* being thus divided, was properly that which they called a ſyſtem, of which there were many kinds, according to the different diviſions of the *monochord*. *Harris*.

(2.) *The* MONOCHORD is uſed, as well in the natural as in tempered ſcales. Originally it had, as its name implies, only *one* ſtring; but it is better conſtructed with two, as we have, by means of this additional ſtring, an opportunity of judging of the harmony of two tempered notes in every poſſible variety of temperament. (See TEMPERAMENT and TONE.) It conſiſts of a braſs rule placed upon a ſound-board, and accurately divided into different ſcales, according to the purpoſes for which it is chiefly intended. Above this rule the ſtrings are to be ſtretched over two fixed bridges, between which there is a moveable fret, ſo contrived as to divide at pleaſure one of the ſtrings into the ſame proportional parts as are engraved upon the ſcales beneath. The figure of the inſtrument, the manner of ſtriking the ſtrings ſo as to produce the ſound, as likewiſe the conſtruction of the moveable bridge, may be varied at pleaſure according to the wiſh and ingenuity of the artiſt. But with the aſſiſtance of ſuch an inſtrument accurately conſtructed, any perſon with a good ear may be enabled to tune a keyed inſtrument with ſufficient preciſion to anſwer every practical purpoſe. See TUNING. The curious reader, who may wiſh for further information reſpecting the conſtruction and uſe of monochords, will be highly gratified in peruſing the appendix of Mr *At-*

wood's Treatiſe on Rectilinear Motion, and Mr Jones's ingenious and entertaining obſervations on the ſcale of muſic, monochord, &c. in his *Phyſiological Diſquiſitions*.

(3.) MONOCHORD. See TRUMPET MARINE.

MONOCLINIA. See BOTANY, *Index*.

MONOCOTYLEDONES. See BOTANY, *Gloſſ.*

* MONOCULAR. } *adj.* [μον[illegible] and *oculus*.]
* MONOCULOUS. } One-eyed; having only one eye.—He was well ſerved, who, going to cut down an ancient white hawthorn tree, which, becauſe ſhe budded before others, might be an occaſion of ſuperſtition, had ſome of the prickles flew into his eyes, and made him *monocular*. *Howel*. —Thoſe of China repute the reſt of the world *monoculous*. *Glanville*.

MONOCULUS, in zoology; a genus of inſects of the order *aptera*. Its body is ſhort, of a roundiſh figure, and covered with a firm cruſtaceous ſkin; the fore legs are ramoſe, and ſerve for leaping and ſwimming; it has but one eye, which is large, and compoſed of three ſmaller ones. Of this genus, many of which have been reckoned among the microſcopic animals, authors enumerate a great number of ſpecies. The name *monoculus* has been given to this genus, as conſiſting of individuals which apparently have but one eye: and from the manner in which they proceed forward in the water by leaping, they have alſo been called *water fleas*. (See PULEX AQUATICUS.) The branching antennæ ſerve them inſtead of oars, the legs being ſeldom uſed for ſwimming. "The tail (ſays Barbut, in his *Genera of Inſects*), forked in ſome ſpecies, in others ſimple, ſerves them for a rudder. Their colour varies from white to green, and to red, more or leſs deep, doubtleſs in a ratio to the fragments of the vegetables on which they feed. The red tincture they ſometimes give to the water, has made ſome think that the water had turned to blood. Too weak to be carnivorous, they fall a prey to other aquatic inſects, even to the polypi. Their body, compact and hard, is ſo tranſparent, that in ſome the eggs with which the abdomen is filled are diſcernible. The water parrot and the ſhell monoculus are remarkable. This latter is provided with a bivalvular ſhell, within which he ſhuts himſelf up, if drawn out of the water. The ſhell opens underneath, the inſect puts forth its antennæ, by means of which it ſwims very expeditiouſly in various directions, ſeeking a ſolid body to adhere to, and then it is it uſes its feet in walking, by ſtretching them out through the aperture of its ſhell. I preſerved a pair of theſe inſects (ſays Mr Barbut, in his *Genera of Inſects*, p. 360) laſt year, in a ſmall glaſs tumbler, the one male, the other female, having a bag filled with eggs affixed on each ſide the abdomen. In the ſpace of 14 days the increaſe was aſtoniſhing: it would have been impoſſible to have taken a ſingle drop of water out of the glaſs, without taking with it either the larva or a young monoculus. I again repeated the experiment, by ſelecting another pair; and at the expiration of the laſt 14 days my ſurpriſe was increaſed beyond meaſure. The contents of the glaſs appeared a maſs of quick-moving animated matter; and being diverſified by colours of red, green, aſh-colour, white, &c. afforded, with the aſſiſtance of the magnifier, conſiderable entertainment.

MONOCULUS QUADRICORNIS, the *four-horned monoculus*, a very ſmall ſpecies, about half a line in length, and of an aſhen grey colour. (See *Plate* CCXX. *fig.* 10.) From the head ariſe 4 antennæ, two forwards and two backwards; all furniſhed with a few hairs, which give them the figure of a branch. Between the antennæ, on the fore part of the head, is ſituated a ſingle eye. From the head to the tail the body goes down, decreaſing in ſhape like a pear; and is compoſed of 7 or 8 rings, which grow continually more ſtraitened. The tail is long, divided into two; each diviſion giving riſe outwardly to 3 or 4 briſtly hairs. The animal carries its eggs on the two ſides of its tail, in the form of two yellowiſh parcels filled with ſmall grains, and which, taken together, nearly equal the inſect in bigneſs. This minute inſect is found in ſtanding pools. A number of them being kept in a bottle of water, ſome will be ſeen loaded with their eggs, and after a while depoſiting the two parcels, either jointly or ſeparately.

MONODON, in ichthyology, a genus of fiſhes belonging to the order of *cete*; the characters of which are theſe: There are 2 very long, ſtraight, and ſpirally twiſted teeth, which ſtick out from the upper jaw; and the ſpiracle, or breathing hole, is ſituated on the anterior part of the ſkull. (See *Plate* CCXX. *fig.* 11.) There is but one ſpecies:

MONODON MONOCEROS, the *horned narwhal*, ſometimes grows to 25 feet in length, excluſive of the horn; or, as ſome authors ſay, to 40, or even 60 feet long, and 12 broad; but the uſual ſize is from 16 to 20. It is particularly noted for its *horn* or *horns*, as they are called; but which are real teeth. Of theſe there are always two in young animals; though the old ones have generally but one, ſometimes none. From the circumſtance of only one tooth being uſually found, the animal has acquired the name of *Unicorn Fiſh*, or *Sea Unicorn*. They inhabit the northern ſeas, from Norway to within the arctic circle: they are plentiful in Davis's Straits and the north of Greenland; where the natives, for want of wood, make rafters of the teeth. From the tooth or horn may be diſtilled a very ſtrong *ſal volatile*: the ſcrapings are eſteemed *alexipharmic*, and were uſed of old in malignant fevers, and againſt the bites of ſerpents. The uſe of it to the animal ſeems to be chiefly as a weapon of offence, and a very powerful one it appears to be: there are many inſtances of its having been found in the bottom of ſhips which returned from the N. ſeas, probably owing to the animal's miſtaking the ſhip for a whale, and attacking it with ſuch fury as not to be able to get out the weapon from the wood. It may alſo ſerve as an inſtrument to looſen and diſengage from the rocks or bottom of the ſea the ſea plants on which it feeds. Theſe fiſhes ſwim ſwiftly, and can only be ſtruck when numbers happen to be found together, and obſtruct their own courſe with their teeth. Their ſkin is white, with black ſpots on the back, and has a great quantity of blubber underneath. The tooth of this animal was anciently impoſed upon the world as the horn of an unicorn, and ſold at a very high price. The heirs of the chancellor to Chriſtian Friſius of Denmark valued one at 800 imperials. There is a magnificent throne made of this ſpecies of ivory for the Daniſh monarchs, which is ſtill preſerved in the caſtle at Roſenberg. The price of this material was ſuperior to gold.

(1.) * MONODY. *n. ſ.* [μονωδια; *monodie*, Fr.] A poem ſung by one perſon not in dialogue.

(2.) MONODY, [from μονος, alone, and αδω, I ſing,] was, in ancient poetry, a mournful kind of ſong, ſung by a perſon all alone, to give vent to his grief.

MONOECIA, [from μονος, alone, and οικια, a houſe;] the 21ſt claſs in Linnæus's ſexual method. See BOTANY, *Index*.

MONOEMUGI. See MONEMUGI.

MONOGAMIA. See BOTANY, *Index*.

* MONOGAMIST. *n. ſ.* [μονος and γαμος; *monogame*, Fr.] One who diſallows ſecond marriages.

(1.) * MONOGAMY. *n. ſ.* [*monogamie*, Fr. μονος and γαμεω.] Marriage of one wife.

(2.) MONOGAMY, [from μονος, alone, and γαμος, marriage,] is the ſtate of thoſe who have only married once, or are reſtrained to a ſingle wife. See POLYGAMY.

MONOGLOSSUM, in ancient geography, a market town of the Hither India, ſituated on the Sinus Canthi, into which the Indus runs; now called MANGALORE.

(1.) * MONOGRAM. *n. ſ.* [μονος and γραμμα; *monogramme*, Fr.] A cypher; a character compounded of ſeveral letters.

(2.) A MONOGRAM is compoſed of ſeveral letters interwoven; being a kind of abbreviation of a name, uſed for ſeals, badges, arms, &c.

MONOGYNIA, [from μονος, alone, and γυνη, a woman,] the firſt order in the firſt 13 claſſes of Linnæus's ſexual method; conſiſting of plants which, beſides their agreement in their claſſic character, generally derived from the number of their ſtamina, have only one ſtyle, or female organ. See BOTANY, *Index*.

MONOK, a town of Hungary, 12 m. W. Tokay.

* MONOLOGUE. *n. ſ.* [μονος and λογος; *monologue*, Fr.] A ſcene in which a perſon of the drama ſpeaks by himſelf; a ſoliloquy.—He gives you an account of himſelf, and of his returning from the country, in *monologue;* to which unnatural way of narration, Terence is ſubject in all his plays. *Dryden.*

* MONOMACHY. *n. ſ.* [μονομαχια; μονος and μαχη.] A duel; a ſingle combat.

* MONOME. *n. ſ.* [*monome*, Fr.] In algebra, a quantity that has but one denomination or name; as, a b, a a b, a a a b. *Harris.*

MONOMONIL, a town of N. America, on the W. ſide of Green Bay.

MONOMOTAPA, a country of Africa, which has the kingdom of Sofala on the E. the river Spiritu Santo on the S. the mountains of Caffraria on the W. and the river Cauma on the N. which parts it from Monoemugi. The air is very temperate; the land fertile in paſtures and all the neceſſaries of life, being watered by ſeveral rivers. The inhabitants are rich in black cattle, which they value more than gold. They have a vaſt number of elephants, as appears from the great quantity of ivory that is exported from hence. There are many gold mines, and the rivers that run through their veins carry a great deal of gold duſt along with them. The inhabitants are lovers of war. This country is divided into 7 provinces or petty kingdoms, under the king, viz. Monomotapa Proper, Quiteve, Manica, Inhambana, Inhemior, Sabia, and Sofala.

MONOMUGI. See MONEMUGI.

MONONGAHELA, a river of the United States, which riſes at the foot of Laurel Mountain in Virginia; thence meanders N. by E. into Pennſylvania; thence winding N. by W. ſeparates Fayette and Weſtmoreland from Waſhington county, and, paſſing into Alleghany county, joins the Alleghany at Pittſburg, and forms the Ohio. See OHIO. About 15 miles from its mouth, it receives the YOUGHIOGANY from the SE. It is about 220 miles long from its ſource to its mouth, and 300 yards broad for 95 miles.

MONONGALIA, a northern county of Virginia, 40 miles long and 30 broad; containing 4614 citizens, and only 154 ſlaves, in 1797.

(1.) * MONOPETALOUS. *adj.* [*monopetale*, Fr. μονος and πεταλον.] It is uſed for ſuch flowers as are formed out of one leaf, howſoever they may be ſeemingly cut into many ſmall ones, and thoſe fall off together. *Quincy.*

(2.) MONOPETALOUS. See BOTANY, *Gloſſary*.

MONOPHYLLOUS. See BOTANY, *Gloſſary*.

MONOPHYSITES, [from μονος, alone, and φυσις, nature,] a general name given to all thoſe ſectaries in the Levant who only own one nature in Jeſus Chriſt; and who maintain, that the divine and human nature of Chriſt were ſo united as to form only one nature, yet without any change, confuſion, or mixture of the two natures. The *monophyſites*, however, properly ſo called, are the followers of Severus, a learned monk of Paleſtine, who was created patriarch of Antioch in 513, and Petrus Fullenſis. They were encouraged by the emperor Anaſtaſius, but depreſſed by Juſtin and ſucceeding emperors. However, this ſect was reſtored by Jacob Baradæus, an obſcure monk, inſomuch, that when he died biſhop of Edeſſa, A. D. 588, he left it in a moſt flouriſhing ſtate in Syria, Meſopotamia, Armenia, Egypt, Nubia, Abyſſinia, and other countries. The laborious efforts of Jacob were ſeconded in Egypt and the adjacent countries by Theodoſius biſhop of Alexandria; and he became ſo famous, that all the monophyſites of the eaſt conſidered him as their ſecond founder, and are to this day called *Jacobites*, in honour of their new chief. (See JACOBITES, § 2.) The monophyſites are divided into two ſects or parties, the one African, the other Aſiatic: at the head of the latter is the patriarch of Antioch, who reſides for the moſt part in the monaſtery of St Ananias, near the city of Merdin: the former are under the juriſdiction of the patriarch of Alexandria, who generally reſides at Grand Cairo, and are ſubdivided into Cophts and Abyſſinians. From the 15th century downwards, all the patriarchs of the monophyſites have taken the name of *Ignatius*, to ſhow that they are the lineal ſucceſſors of Ignatius, Bp. of Antioch in the firſt century, and conſequently the lawful patriarchs of Antioch. In the 17th century, a ſmall body of the monophyſites in Aſia abandoned for ſome time the doctrine and inſtitution of their anceſtors, and embraced the communion of Rome: but the African monophyſites, notwithſtanding that poverty and ignorance which expoſed them to the ſeductions of ſophiſtry and gain, ſtood firm in their principles, and made an obſtinate reſiſtance to the promiſes, preſents, and attempts employed by the papal miſſionaries to bring them under the Roman yoke: and in the 18th century, thoſe of Aſia and Africa have perſiſted in their refuſal to enter into the communion of the Romiſh church, notwithſtanding the earneſt intreaties and alluring offers that have been made from time to time by the pope's legates, to conquer their inflexible conſtancy. The monophyſites propagate their doctrine in Aſia with zeal and aſſiduity, and have not long ago gained over to their communion a part of the Neſtorians, who inhabit the maritime coaſts of India.

MONOPOLI, a town of Naples, in Bari.

* MONOPOLIST. *n. ſ.* [*monopoleur*, Fr.] One who by engroſſing or by patent obtains the ſole power or privilege of vending any commodity.

* *To* MONOPOLIZE. *v. a.* [μονος and πωλεω; *monopoler*, Fr.] To have the ſole power or privilege of vending any commodity.—He has ſuch a prodigious trade, that if there is not ſome ſtop put, he will *monopolize*; nobody will ſell a yard of drapery or mercery ware but himſelf. *Arbuth.*

(1.) * MONOPOLY. *n. ſ.* [μονοπωλια; *monopole*, French; μονος and πωλεω.] The excluſive privilege of ſelling any thing.—If I had a *monopoly* on't, they would have part on't. *Shak.*—

How could he anſwer't, ſhould the ſtate think
fit,
To queſtion a *monopoly* of wit? *Cowley.*

—One of the moſt oppreſſive *monopolies* imaginable. *Govern. of the Tongue.*—Shakeſpeare rather writ happily than knowingly and juſtly; and Jonſon, who, by ſtudying Horace, had been acquainted with the rules, yet ſeemed to envy to poſterity that knowledge, and to make a *monopoly* of his learning. *Dryden.*

(2.) *A* Monopoly is one or more perſons making themſelves the ſole maſters of the whole of a commodity, manufacture, and the like, in order to make private advantage of it, by ſelling it again at a very advanced price: or it is a licence or privilege allowed by the king for the ſole buying and ſelling, making, working, or uſing any thing whatſoever. Monopolies had been carried to an enormous height during the reign of Q. Eliſabeth; and were heavily complained of by Sir Edward Coke, in the beginning of the reign of K. James I.: but were in great meaſure remedied by ſtatute 21 Jac. I. c. 3. which declares ſuch monopolies to be contrary to law, and void; (except as to patents, not exceeding the grant of 14 years, to the authors of new inventions, and except alſo patents concerning printing, ſaltpetre, gunpowder, great ordnance, and ſhot); and monopoliſts are puniſhed with the forfeiture of treble damages and double coſts, to thoſe whom they attempt to diſturb; and if they procure any action, brought againſt them for theſe damages, to be ſtayed by any extrajudicial order, other than of the court wherein it is brought, they incur the penalties of *præmunire.* Combinations alſo among victuallers or artificers, to raiſe the price of proviſions, or any commodities, or the rate of labour, are in many caſes ſeverely puniſhed by particular ſtatute; and, in general, by ſtatute 2 and 3 Edward VI. c. 15. with the forfeiture of 10l. or 20 days impriſonment, with an allowance of only bread and water for the firſt offence; 20l. or the pillory for the ſecond; and 40l. for the third, or elſe the pillory, loſs of one ear, and perpetual infamy. In the ſame manner, by a conſtitution of the emperor Zeno, all monopolies and combinations to keep up the price of merchandiſe, proviſions, or workmanſhip, were prohibited, upon pain of forfeiture of goods and perpetual baniſhment.

* MONOPTOTE. *n. ſ.* [μονος and πτωσις.] A noun uſed only in ſome one oblique caſe. *Clarke.*

* MONOSTICH. *n. ſ.* [μονοστιχον.] A compoſition of one verſe.

* MONOSYLLABICAL. *adj.* [from *monoſyllable.*] Conſiſting of words of one ſyllable.

(1.) * MONOSYLLABLE. *n. ſ.* [*monoſyllabe*, French; μονος and συλλαβη.] A word of only one ſyllable.—

My name of Ptolemy!
It is ſo long it aſks an hour to write it:
I'll change it into Jove or Mars,
Or any other civil *monoſyllable*,
That will not tire my hand. *Dryden.*

—Poets, although not inſenſible how much our language was already overſtocked with *monoſyllables*, yet, to ſave time and pains, introduced that barbarous cuſtom of abbreviating words, to fit them to the meaſure of their verſes. *Swift.*—*Monoſyllable* lines, unleſs artfully managed, are ſtiff or languiſhing; but may be beautiful to expreſs melancholly. *Pope.*

(2.) Monosyllables are too frequently uſed, and have a very bad effect in Engliſh poetry, as Mr Pope both intimates and exemplifies in this verſe;

"And ten ſlow words oft creep in one dull line."

* MONOSYLLABLED. *adj.* [*monoſyllabe*, Fr. from *monoſyllable.*] Conſiſting of one ſyllable.—

Nine tailors, if rightly ſpell'd,
Into one man are *monoſyllabled.* *Cleaveland.*

MONOTHELITES, [from μονος, ſingle, and θελημα, will,] an ancient ſect which ſprung out of the Eutychians; thus called, as only allowing of one will in Jeſus Chriſt.—The Monothelites had their riſe in 630, and had the emperor Heraclius for an adherent: they were the ſame with the *Acephalous Severians.* They allowed of two wills in Chriſt, conſidered with regard to the two natures; but reduced them to one, by reaſon of the union of the two natures; thinking it abſurd there ſhould be two free wills in one and the ſame perſon. They were condemned by the 6th general council in 680, as being ſuppoſed to deſtroy the perfection of the humanity of Jeſus Chriſt, depriving it of will and operation. Their ſentiments were afterwards embraced by the Maronites.

(1.) * MONOTONY. *n. ſ.* [μονοτονια; μονος and τονος; *monotonie*, French.] Uniformity of ſound; want of variety in cadence.—I could object to the repetition of the ſame rhimes within four lines of each other as tireſome to the ear through their *monotony.* *Pope.*

(2.) Monotony is a fault in pronunciation, when a long ſeries of words are delivered in one unvaried tone. See Reading.

MONOTROPA. Bird's-nest, a genus of the monogynia order, belonging to the monandria claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. There is no calyx, but 10 petals; and of theſe the five exterior have a melliferous hollow at the baſe. The capſule is quinque-valved. In ſome of the flowers a 5th part of the number is excluded as in the *M. hippopithye*. There are two ſpecies. The moſt remarkable is

Monotropa hippopithys, a native of Britain and ſome of the more northerly kingdoms of Europe. It is about 5 inches high, having no other leaves than oval ſcales, and terminated with a nodding ſpike of flowers, which in the ſeeding ſtate becomes erect: the whole plant is of a pale yellow colour, ſmelling like the primroſe, or like beans in bloſſom. The country people in Sweden give the dried plant to cattle that have a cough.

MONOVAR, a town of Spain, in Valencia.

MONPADRE, a town in Margaretta iſle.

MONPAZIER, a town of France, in the dep. of Dordogne, 8 miles SW. of Belvez, and 18 SW. of Sarlat. Lon. 18. 33. E. of Ferro: Lat. 44. 46. N.

MONPOX, a city of S. America, in Terra Firma, 75 miles SE. by E. of Tolu.

MONPREIS, a town of Germany, in Stiria.

MONQUEGNA, or }
(1.) MONQUEGUA, } a province of Peru, in the biſhopric of Arequipa, 120 miles long, very fertile in vines, olives, papas, &c. Its chief trade is in wine and brandy.

(2.) Monquegua, the capital of the above province, is chiefly inhabited by Spaniſh nobles; and lies 70 miles SE. of Arequipa.

MONREAL. See Montreal.

MONREJEAN, a town of France, in the dep. of Upper Garonne, 15 miles SE. of Rieux.

MONRICOUX, a town of France, in the department of the Lot, 12 miles NE. of Montauban.

(1.) MONRO, John, youngeſt ſon of Sir Alexander Monro of Bearcrofts, a deſcendant of the family of Monro of Milton, which had large poſſeſſions in Roſs-ſhire, was bred to phyſic and ſurgery, and ſerved for ſome years as a ſurgeon in the army under K. William in Flanders; but, for ſeveral ſucceſſive years, obtaining leave of abſence from the army in the winter, he during that ſeaſon reſided with his wife in London, where his ſon Alexander was born in 1697. About 1700, he quitted the army, and went to ſettle as a ſurgeon at Edinburgh; where his knowledge in his profeſſion, and engaging manners, ſoon introduced him into an extenſive practice. He lived to an advanced age; and enjoyed the unſpeakable pleaſure of beholding a ſon, eſteemed and regarded by mankind, the principal actor in the execution of his favourite plan, the great object of his life, the founding a ſeminary of medical education in his native country. (See N° 2.) He died in 1737.

(2.) Monro, Dr Alexander, ſenior, a moſt eminent phyſician and anatomiſt, was deſcended by his mother from the family of Forbes of Culloden. He ſhowed an early inclination to the ſtudy of phyſic; and the father, after giving him the beſt education that Edinburgh afforded, ſent him ſucceſſively to London, Paris, and Leyden, to improve himſelf. At London, he attended the lectures of Meſſrs Hawkſbee and Whiſton on experimental philoſophy, and the anatomical demonſtrations of Mr Cheſelden. At Paris, he attended the hoſpitals, and the lectures on phyſic and ſurgery. In autumn 1718, he went to Leyden, and ſtudied under the great Boerhaave, by whom he was particularly eſteemed. On his return to Edinburgh in autumn 1719, Meſſrs Drummond and Macgill, who were then conjunct nominal profeſſors of anatomy to the ſurgeons company, having reſigned in his favour, he began to read public lectures on anatomy, at the ſame time that Dr Alſton began his lectures on botany, which were the firſt regular courſe of lectures on any of the branches of medicine that had ever been read at Edinburgh, and may be conſidered as the opening of that medical ſchool which has ſince acquired ſuch great reputation all over Europe. About 1720, his father communicated to the phyſicians and ſurgeons at Edinburgh a plan, which he had long formed in his own mind, of having the different branches of phyſic and ſurgery regularly taught at Edinburgh; which was highly approved of by them, and by their intereſt regular profeſſorſhips of anatomy and medicine were inſtituted in the univerſity, of the former of which Dr Monro was the firſt profeſſor. But although he was elected to this profeſſorſhip in 1721, he was not received into the univerſity till the year 1725, when he was inducted along with the late Mr Colin Maclaurin, with whom he ever lived in the ſtricteſt friendſhip. (See Maclaurin, N° 1.) From this time he regularly gave a courſe of lectures on anatomy and ſurgery, from October to May, upon a moſt judicious and comprehenſive plan: A taſk in which he perſevered with the greateſt aſſiduity, and without the leaſt interruption, for near 40 years; and ſo great was the reputation he had acquired, that ſtudents flocked to him from the moſt diſtant corners of his majeſty's dominions. In 1759, our profeſſor entirely relinquiſhed the anatomical theatre to his ſon Dr Alexander, who had returned from abroad, and had aſſiſted him in the courſe of lectures in 1758. He ſtill, however, rendered his labours uſeful to mankind, by reading clinical lectures at the hoſpital. Dr Monro ſurvived his father near 30 years, and had the ſatisfaction to behold that ſeminary of medical education, which his father had planned, and he had begun, frequented yearly by 300 or 400 ſtudents, many of whom came from the moſt diſtant corners of his majeſty's dominions; and to ſee it arrive to a degree of reputation far beyond his moſt ſanguine hopes, being equalled by few, and excelled by none in Europe. Few men were members of more ſocieties than Dr Monro; ſtill fewer equally aſſiduous in their attendance of thoſe which in any way tended to promote public utility. He was a manager of many public charities; and not only a member of different medical ſocieties, but likewiſe of ſeveral others inſtituted for promoting literature, arts, ſciences, and manufactures, in Scotland, and was one of their moſt uſeful members. While he was held in high eſtimaſion at home, he was equally eſteemed and reſpected abroad, and was elected F. R. S. of London, and an honorary member of the Royal Academy of Surgery at Paris. He was not only very active in his profeſſion, but as a citizen and member of the community; for, after he had reſigned the anatomical chair to his ſon, he executed with the ſtricteſt punctuality the duties of ſeveral engagements both of a civil and political nature: he was a director of the Bank of Scotland, a Juſtice of the Peace, a Commiſſioner of High Roads, &c. At length, after a life ſpent in the moſt active induſtry, he became afflicted with a tedious and painful diſeaſe, which he bore with equal courage and reſignation till his death, which happened July 10th 1767, in the 70th year of his age. A collection of all his works, properly arranged, corrected, and illuſtrated with copperplates, has been publiſhed by Dr Alexander Monro, his ſon and ſucceſſor, in a ſplendid 4to volume; Edinburgh, 1781; to which he prefixed a life of the author, by another of his ſons, Dr Donald phyſician in London.

(3.) **Monro**, Rev. Alexander, a Scottiſh epiſcopal divine, born in Roſs-ſhire, in 1648, and educated at King's College, Aberdeen, where he was choſen profeſſor of philoſophy. In 1686, he was appointed principal of the Univerſity of Edinburgh. He publiſhed ſeveral tracts againſt the Preſbyterians, and a volume of ſermons addreſſed to his friends and acquaintances, in the North Eaſt pariſh of St Giles Edinburgh, where they were preached. He was a biſhop elect at the revolution, but never conſecrated, and died in 1713.

(4.) **Monro**, John, M. D. an eminent Engliſh phyſician, born at Greenwich in Kent, but deſcended of a Scottiſh family. He was educated at London, and afterwards at St John's College, Oxford, of which he became a fellow, and from which he received his degree, while he was abroad, for he ſtudied phyſic at ſeveral univerſities. In 1757, he was appointed joint phyſician along with his father, to Bridewell and Bethlehem hoſpitals. He publiſhed an excellent anſwer to Dr Battie's *Treatiſe on Madneſs*, and died in 1791.

MONROYO, a town of Spain, in Arragon.

(1.) **MONS**, an ancient, large, handſome, rich, and very ſtrong city of France, capital of the department of GEMAPPES; as it was formerly of the ci-devant Auſtrian province of HAINAULT. It had an ancient caſtle, built by Julius Cæſar, about A. A. C. 50. A Roman legion under Q. Cicero, the orator's brother, was beſieged in it, by the Nervii and Ambiorix, King of the Eburones, but they were defeated by Cæſar. This caſtle was demoliſhed in 1618, to build a church. The inhabitants have ſeveral manufactures, and a good trade. Mons was taken by the allies in 1709, and by the French in July 1746; but reſtored by the treaty of Aix-la Chapelle, after the fortifications were demoliſhed. It ſtands partly on a hill, (whence the name) and partly on a plain in a marſhy ſoil, on the rivers Haine and Troulli, by which the country about it may be overflowed upon an emergency. It was taken by the French under general Dumourier, on the 6th Nov. 1792; retaken about the end of 1793, by the allies; but recovered by the French under Pichegru, on the 1ſt July 1794. It lies 17 miles NE. of Tournay, and 37 W. of Namur. Lon. 43. E. Lat. 50. 28. N.

(2.) **Mons Sacer**, in ancient geography, a mountain of the Sabines beyond the Anio, to the eaſt of Rome; whither the people retired once and again to avoid the tyranny of the patricians. From this ſeceſſion, and the altar of *Jupiter Terribilis* erected there, the mountain took its name.

MONSANTO, a town of Spain, in Eſtremadura. Lon. 6. 20. W. Lat. 39. 40. N.

MONSARAZ, a town of Portugal, in Alentejo, 25 miles SW. of Elvas. Lon. 7. 32. W. Lat. 38. 26. N.

MONSEFU, a town of S. America, in Terra Firma, and biſhopric of Truxillo; 12 miles S. of Lambayeque.

(1.) **MONSEGUR**, a town of France, in the dep. of the Gironde; 7½ miles NE. of Reolle.

(2.) **Monsegur**, a town of France, in the dep. of Lot and Garonne; 5 miles SE. of Monflanquin, and 7 NW. of Tournon.

(1.) **MONSEIGNEUR.** *n. ſ.* [Fr *mon*, my, and *ſeigneur*, lord, plural *Meſſeigneurs*,] a title of honour and reſpect uſed by the French in writing to perſons of ſuperior rank or quality, before the late abolition of all titles. Dukes, peers, archbiſhops, biſhops, and preſidents *a la mortier*, were complimented with this title. In the petitions preſented to the ſovereign courts, they uſed *Meſſeigneurs.*

(2.) **Monseigneur**, abſolutely uſed, was a title reſtrained to the dauphin of France. This cuſtom was unknown till the time of Lewis XIV. before which the dauphin was ſtyled *Monſier le Dauphin.*

MONSELICE, a town of Maritime Auſtria, in the province of Paduano; 8 miles S. of Padua.

MONSEY, Meſſenger, A.B. and M. D. a celebrated Engliſh phyſician, born in 1693, at a village in Norfolkſhire, of which his father was rector, but ejected at the revolution. He was educated at Pembroke college, Cambridge; ſtudied phyſic under Sir B. Wrench at Norwich, and practiſed at Bury. By the intereſt of lord Godolphin, he was appointed phyſician of Chelſea hoſpital. He wrote ſeveral poems, and was a man of great originality. He died 25th Dec. 1788, and ordered by his will, that his body ſhould be anatomiſed, and the ſkeleton kept in Chelſea hoſpital.

MONSIES, a tribe of the DELAWARE nation of N. American Indians.

(1.) **MONSIEUR.** *n. ſ.* [Fr. *mon* and *ſieur*; plural *Meſſieurs*,] a title of civility, uſed by the French in ſpeaking to their equals, or thoſe a little below them before the revolution, anſwering to *Mr* or *Sir* among the Engliſh. After that event it was changed for the democratic term, *Citizen*, but is again reſtored with every other title or addreſs formerly in uſe. See CITIZEN, § 4.

(2.) **Monsieur**, abſolutely uſed, was a title appropriated to the ſecond ſon of the king of France. The king was alſo called *Monſieur*, but that only by the children of the royal family.

(3.) * **Monsieur** *n. ſ.* [French.] A term of reproach for a Frenchman.—

An eminent *monſieur*, that it ſeems, much loves
A Gallian girl. *Shak. Cybeline.*

MONSOL, a town of France, in the dep. of Rhone and Loire; 15 miles N. of Villefrenche.

(1.) MONSON, Sir William, a brave Engliſh admiral, third ſon of Sir John Monſon of South Carlton in Lincolnſhire, was born in 1569. He was employed in many expeditions againſt the Spaniards in Q. Elizabeth's time, and was highly honoured; the queen knighted him for his ſervices in the earl of Eſſex's expedition to Cadiz, where he aſſiſted the earl much by his wiſe and moderate counſel. On the death of the queen, he received no recompence or pay beyond the ſervice in which he was engaged; yet as admiral, he ſupported the honour of the Britiſh flag againſt the inſolence of the Dutch ſtates, of which he frequently complains in his *Navy Tracts*; and protected our trade againſt the encroachments of France. Inſtead of reward he got diſgrace by his vigilance, and was impriſoned in the tower, through the reſentment of ſome powerful courtiers; but was diſcharged, and wrote a vindication of his conduct, entitled "Concerning the inſolences of the Dutch, and a Juſtification of Sir William Monſon." He ſpent his latter days in peace, in digeſting his Navy Tracts, and died in 1643.—Part of theſe were printed in 1682; and they were afterwards all included in Churchill's Collection of Voyages.

(2.) Monson, a townſhip of Maſſachuſetts in Hampſhire county, 80 miles SW. by W. of Boſton; containing 1331 citizens in 1797.

MONSONIA, in botany, a genus of the dodecandria order, belonging to the polyadelphia claſs of plants. The calyx is pentaphyllous; the corolla pentapetalous and irregular; the ſtamina are 15 in number, and coalited into five filaments; the ſtyle bifid; the capſule pentacoccous.

(1.) * MONSOON. *n. ſ.* [*monſon*, *monçon*, Fr.] —*Monſoons* are ſhifting trade winds in the Eaſt Indian ocean, which blow periodically; ſome for half a year one way, others but for three months, and then ſhift and blow for ſix or three months directly contrary. *Harris.*—The *monſoons* and trade winds are conſtant and periodical even to the 30th degree of latitude all around the globe, and ſeldom tranſgreſs or fall ſhort of thoſe bounds. *Ray.*

(2.) Monsoons. In the Indian ocean, theſe winds are partly general, and blow all the year round the ſame way, as in the Ethiopic ocean; and partly periodical, *i. e.* half the year blow one way, and the other half nearly on the oppoſite points: and thoſe points and times of ſhifting differ in different parts of this ocean. Theſe latter are what we call *monſoons*. The ſhifting of theſe monſoons is not all at once; in ſome places the time of the change is attended with calms, in others with variable winds, and particularly thoſe of China, at ceaſing to be weſterly, are very apt to be tempeſtuous; and ſuch is their violence, that they ſeem to be of the nature of the Weſt India hurricanes, and render the navigation of thoſe ſeas very unſafe. Theſe tempeſts the ſeamen call the *breaking up of the monſoons*. Monſoons take their name from an ancient pilot, who firſt croſſed the Indian ſea by means hereof: but others derive the name from a Portugueſe word, ſignifying motion or change of wind and ſea. Lucretius and Apollonius mention annual winds which ariſe every year, *eteſia flabria*, which ſeem to be the ſame with what in the Eaſt Indies we now cal *monſoons*. See Wind.

(1.) MONSTER, in geography, a town o Holland, in the dep. of Delft, and late prov. of S Holland, 8 miles W. of Delft.

(2.) * Monster. *n. ſ.* [*monſtre*, Fr. *monſtrum*, Latin.] 1. Something out of the common orde of nature.—

Thou like ſome worthy knight with ſacred
arms,
Doſt drive the *monſters* thence. *Cowley.*

—It ought to be determined whether *monſters* be really a diſtinct ſpecies. *Locke.* 2. Something horrible for deformity, wickedneſs or miſchief.—

If ſhe live long,
And, in the end, meet the old courſe of death,
Women will all turn *monſters*. *Shak. K. Lear.*

All human virtue, to its lateſt breath,
Finds envy never conquer'd but by death:
The great Alcides, ev'ry labour paſt,
Had ſtill this *monſter* to ſubdue at laſt. *Pope.*

(3.) *A* Monster is a birth or production of a living being, degenerating from the proper and uſual diſpoſition of parts in the ſpecies to which it belongs: As, when there are too many members, or too few; or ſome of them are extravagantly out of proportion, either on the ſide of defect or exceſs. The word comes from the Latin *monſtrare to ſhow*. Ariſtotle defines a monſter to be a defect of nature, when, acting towards ſome end, it cannot attend to it, from ſome of its principles being corrupted. Monſters do not propagate their kind; for which reaſon ſome rank *mules* among the number of monſters, as alſo *hermaphrodites*. But Buffon and other naturaliſts affirm that mules do propagate. See Mule, § 2. Females which bring forth twins are moſt liable to produce monſters. The reaſon, probably is, that though the twins are covered with one common chorion, yet they have each their ſeparate amnios, which by their contiguity may chance to grow together, and ſo occaſion a confuſion or blending of the parts. Hence ſo many double creatures. (See § 5.)

(4.) Monster is alſo uſed for an animal enormous for bulk; ſuch as the elephant among terreſtrial quadrupeds, and the ſhark and the whale among ſea animals; to other animals remarkable for fierceneſs and cruelty; and to animals of an extraordinary ſpecies, ariſing from the copulation of one animal with another of a different genus. According to reports of travellers, Africa abounds with monſters of kind.

(5.) Monsters, Causes of the Production of. F. Malebranche accounts for the production of monſters in the animal world in the following manner: "The Creator has eſtabliſhed ſuch a communication between the ſeveral parts of his creation, that we are not only naturally led to imitate one another, *i. e.* have a diſpoſition to do the ſame things and aſſume the ſame manners with thoſe with whom we converſe; but alſo have certain natural diſpoſitions which incline us to compaſſion as well as imitation. Theſe things moſt men feel, and are ſenſible of. The animal ſpirits, then, are not only naturally carried into the reſpective parts of the body to perform the ſame action actions and the ſame motions which we ſee others do, but alſo to receive in ſome manner their wounds, and take part in their ſufferings. When we look attentively on any perſon ſeverely beaten, or that hath a large wound, ulcer, or the like, the ſpirits immediately flow into thoſe parts of our body which anſwer to thoſe we ſee ſuffer in the other; unleſs their courſe be ſtopped from ſome other principle. This flux of ſpirits is very ſenſible in perſons of a delicate conſtitution, who frequently ſhudder, and find a kind of trembling in the body on theſe occaſions; and this ſympathy in bodies produces compaſſion in the mind. Now it muſt be obſerved, that the view of a wound, &c. wounds the perſon who views it the more ſtrongly and ſenſibly, as the perſon is more weak and delicate; the ſpirits making a ſtronger impreſſion on the fibres of a delicate body than in thoſe of a robuſt one. Thus ſtrong, vigorous men, &c. ſee an execution without much concern, while women, &c. are ſtruck with pity and horror. As to children ſtill in their mother's womb, the fibres of their fleſh being incomparably finer than thoſe in women, the courſe of the animal ſpirits muſt neceſſarily produce much greater alterations. Theſe things being laid down, monſters are eaſily accounted for. At Paris, a child was born a fool, and with all its legs and arms broke, in the ſame manner as thoſe of criminals in ſome countries are; and lived in one of their hoſpitals 20 years. The cauſe of this accident was, that the mother ſeeing a criminal executed, every ſtroke given to the poor man, ſtruck forcibly the imagination of the woman; and, by a kind of counterſtroke, the tender and delicate brain of the child. Now, though the fibres of the woman's brain were ſtrangely ſhaken by the violent flux of animal ſpirits on this occaſion, yet they had ſtrength and conſiſtence enough to prevent an entire diſorder; whereas the fibres of the child's brain being unable to bear the ſhock of thoſe ſpirits, were quite ruined, and the ravage was great enough to deprive him of reaſon all his lifetime. Again, the view of the execution frighting the woman, the violent courſe of the animal ſpirits was directed forcibly from the brain to all thoſe parts of the body correſponding to the ſuffering parts of the criminal; and the ſame thing muſt happen in the child. But in regard the bones of the mother were ſtrong enough to reſiſt the impulſe of thoſe ſpirits, they were not damaged: and yet the rapid courſe of theſe ſpirits could eaſily overpower and break the tender and delicate fibres of the bones of the child; the bones being the laſt parts of the body that are formed, and having a very ſlender conſiſtence while the child is yet in the womb." Had the mother determined the courſe of theſe ſpirits towards ſome other parts of her body, by tickling or ſcratching herſelf vehemently, the child would not in all probability have had its bones broken; but the part anſwering that to which the motion of the ſpirits was determined, would have been the ſufferer. A ſimilar inſtance to that above related happened not many years ago in *Perthſhire*, to a woman, who ſaw a man's hand cut off, previous to his being hanged for the murder of his wife; and being with child at the time, was afterwards delivered of a daughter, who wants the right hand, and who, we hear, is ſtill living. From ſuch inſtances may be drawn the reaſon why women in the time of geſtation, ſeeing perſons, &c. marked in ſuch a manner in the face, impreſs the ſame mark on the ſame parts of the child: and why, upon rubbing ſome hidden part of the body, when ſtartled at the ſight of any thing, or agitated with any extraordinary paſſion, the mark or impreſſion is fixed on the hidden part, rather than on the face of the child. From the principles here laid down, may moſt, if not all, the phenomena of monſters, as well as of the *nævi materni*, or mother's marks, be accounted for. (See NÆVUS.) Various other theories have been formed by different philoſophers and phyſiologiſts. But after all, it muſt be confeſſed, that we are as yet very little acquainted with the cauſes of theſe phenomena. For each organiſed being there appears to exiſt a primitive germ or model of the different ſpecies drawn by the Creator, determined by forms and ſexes, and realiſed in the individuals of both ſexes, which muſt unite in order to their reproduction. From this model there is no deviation, unleſs when circumſtances occur which derange the primitive organization common to the ſpecies, and produce what we call *monſters*. M. Fabri arranges mutilations of the members, diſtortions, gibboſities, tumors, diviſions of the lips or of the palate, compreſſions of the cranium, and many other deformities of this kind, in the claſs of *morbific* monſtruoſities. In that which he calls *connatural (connaturalle)* monſtruoſities, are placed the plurality, tranſpoſition, and inſertion of the parts. To explain theſe facts, many writers have had recourſe to the effect of the imagination of pregnant women. The cauſes of the firſt claſs of monſtruoſities are diſcuſſed by M. Fabri, who obſerves, that ſome of them are *internal* with regard to the mother, and others *external*. By an *internal cauſe*, he means all thoſe depravations or morbific principles which can affect the fluids, and which vitiate the form and ſtructure of the ſolids; in particular the uterus, in which ſuch depravations have often been found to occur. To theſe he adds violent affections of the mind, ſpaſmodic contractions, hyſteric convulſions, and the many inconveniences of this kind to which women are extremely ſubject. External cauſes comprehend every thing which can act externally upon the fœtus contained in the uterus, ſuch as the preſſure of the clothes; and in ſhort every thing which prevents the free dilatation of the belly in women who are pregnant, violent motions, falls, blows, and all accidents of this kind. Theſe external cauſes, and eſpecially the firſt, compreſs the fœtus in the womb, and oblige it to remain in a very confined ſituation. This, according to Hippocrates, produces thoſe embryos which are born with ſome entire part wounded. M. Fabri maintains, that all deformities of the fœtus proceed from mechanical and accidental cauſes.

(6.) MONSTERS, VARIOUS KINDS OF. Monſters are of various ſtructures. Some have an exceſs or defect in certain parts; ſuch as thoſe which are called ACEPHALOUS, or who want the head; thoſe who have two heads, two arms, two legs, and one body, or which have two bodies and one head,

* MONSTROSITY. Monstruosity. *n. ſ.* [from *monſtrous.*] The ſtate of being monſtrous, or out of the common order of the univerſe. *Monſtroſity* is more analogous.—This is the *monſtruoſity* in love, that the will is infinite, and the execution confin'd. *Shak.*—Such routs and ſhoals of people. as have utterly degenerated from nature, as have in their very body and frame of eſtate a *monſtroſity*. *Bacon.*—We read of monſtrous births, but we often ſee a greater *monſtroſity* in education: thus, when a father has begot a man, he trains him up into a beaſt. *South.*—By the ſame law *monſtroſity* could not incapacitate from marriage; witneſs the caſe of hermaphodites. *Arbuth. and Pope.*

(1.) * MONSTROUS. *adj.* [*monſtreux*, Fr. *monſtroſus*, Latin.] 1. Deviating from the ſtated order of nature.—

Nature there perverſe,
Brought forth all *monſtrous*, all prodigious things,
Hydras, and gorgons, and chimeras dire. *Milt.*

—Some *monſtrous* productions have few of thoſe qualities which accompany the eſſence of that ſpecies from whence they derive their originals. *Locke.* 2. Strange; wonderful. Generally with ſome degree of diſlike.—

Is it not *monſtrous*, that this player here
But in a fiction, in a dream of paſſion,
Could force his ſoul ſo to his conceit,
That, from her working, all his viſage wan'd? *Shak.*

—O *monſtrous!* but one half-penny worth of bread to this intolerable deal of ſack. *Shak.* 3. Irregular; enormous.—

No *monſtrous* height, or breadth, or length appear,
The whole at once is bold and regular. *Pope.*

4. Shocking; hateful.—This was an invention given out by the Spaniards, to ſave the *monſtrous* ſcorn their nation received. *Bacon.*

(2.) * Monstrous. *adv.* Exceedingly; very much. A cant term.—Oil of vitriol and petroleum, a dram of each, turn into a mouldy ſubſtance, there reſiding a fair cloud in the bottom, and a *monſtrous* thick oil on the top. *Bacon.*—She was eaſily put off the hooks, and *monſtrous* hard to be pleaſed again. *L'Eſtrange.*—

Add, that the rich have ſtill a gibe in ſtore,
And will be *monſtrous* witty on the poor. *Juv.*

* MONSTROUSLY. *adv.* [from *monſtrous.*] 1. In a manner out of the common order of nature; ſhockingly: terribly; horribly.—Tiberius was bad enough in his youth, but ſuperlatively and *monſtrouſly* ſo in his old age. *South.* 2. To a great or enormous degree.—

That ſelf chain about his neck,
Which he forſwore moſt *monſtrouſly* to have. *Shak.*
Theſe truths with his example you diſprove,
Who with his wife is *monſtrouſly* in love. *Juv.*

* MONSTROUSNESS. *n. ſ.* [from *monſtrous.*] Enormity; irregular nature or behaviour.—

See the *monſtrouſneſs* of man
When he looks out in an ungrateful ſhape! *Shak.*

MONSTRUM. *n. ſ.* [from *monſtrare*, to ſhow, Lat.] a name given by Dugdale and others to box for keeping relics to be ſhown.

* MONSTRUOSITY. See Monstrosity.

MONSUZAIN, a town of France in the dep. of Aube; 9 miles N. of Troyes.

(1.) MONT, a town of France, in the dep. of the Saone and Loire; 3 miles E. of Bourbon Lancy.

(2.) Mont, a town of Perſia, in Segeſtan.

(3.) Mont, Deodat Del, an eminent painter born at St Tron, in 1581. He ſtudied under Rubens, became his intimate friend, imitated his ſtyle, and travelled to Italy with him. He died in 1634.

MONTA, a town in Italy near Padua.

MONTABAUR, or MONTABOUR, a ſmall fortified town of Germany, in the electorate of Treves, between Coblentz and Limburg: 7 miles N. of Naſſau, and 11 E. of Coblentz. Lon. 7. 50. E. Lat. 50. 20. N.

MONTAFIA, a town of Italy, in the ci-devant county of Aſti, in Piedmont: now included in the French empire, and dep. of the Tanaro; 9 miles ENE. of Chiez, and 11 NW. of Aſti.

MONTAGIANA, a town of Italy, in the dep. of the Mincio, diſtrict and late duchy of Mantua, on the Po, oppoſite to Borgoforte.

MONTAGNA, a hilly diſtrict of the Italian republic, in the dep. of the Mincio, and diſtrict of Verona; containing 10 pariſhes.

MONTAGNAC, 4 towns of France; viz.

1. Montagnac, in the dep. of Dordogne, and diſtrict of Bergerac, 9 miles N. of Bergerac.

2. Montagnac, in the dep. of Herault, 3 m. ESE. of Pezenas, and 7 WSW. of Montpelier.

3 & 4. Montagnac, in the dep. of Lot and Garonne: 1. in the diſtrict of Monflanquin, 3 m. NE. of Monflanquin: and 2. in that of Nerac, 5 miles ENE. of Nerac, and 70 SW. Agen.

(1.) MONTAGNANA, a fertile diſtrict in Paduano, bounded by Cologna and the diſtrict of Verona, in the Italian republic; containing 1 town, 10 villages, and 2200 ſouls.

(2.) Montagnana, a town, capital of the above diſtrict, 13 miles NW. of Rovigo, and 18 SW. of Padua. It is ſeated on a canal, ſurrounded with walls, and contained 6,200 ſouls in 1797.

(3.) Montagnana, or MONTAGNANO, a town of Italy, in the dep. of Panaro, and diſtrict (late duchy) of Modena; 10 miles S. of Modena.

(1.) MONTAGNE. See Montaigne.

(2.) Montagne, Port La, or Port Mountain, a name given to Toulon, by the *Mountain Party* in France, when their power was at its height, but never generally uſed.

MONTAGNIAC, a conſiderable town of Aſiatic Turkey, in Natolia, in the province of Bec-Sangel, on the ſea of Marmora. It carries on a great trade, eſpecially in fruits, and is ſeated on a bay of the ſame name, 12 miles from Burſa, and 60 SE. of Conſtantinople. Lon. 29. 40. E. Lat. 40. 20. N.

MONTAGRIER, a town of France, in the dep. of Dordogne, 6 miles NE. of Riberac.

(1.) MONTAGUE, Charles, earl of Halifax, ſon of George Montague of Harton, Eſq. ſon of Henry the firſt earl of Mancheſter, was born in 1661. He was educated at Weſtminſter and

Cambridge, ſhowed a moſt pregnant genius, and quickly made great progreſs in learning. In 1685, he wrote a poem on the death of King Charles II. in which he diſplayed his genius to ſuch advantage, that he was invited to London by the earl of Dorſet; and upon his coming thither, he ſoon increaſed his fame, by a piece which he wrote in conjunction with Prior, publiſhed at London in 1687, entitled, "The Hind and the Panther tranſverſed to the Story of the Country Mouſe and the City Mouſe." Upon the abdication of King James II. he was choſen a member of the convention, and recommended by the earl of Dorſet to King William, who allowed him a penſion of 500l. a year. Having given proofs of his abilities in the houſe of commons, he was made a commiſſioner of the treaſury, and ſoon after chancellor of the exchequer; in which poſt he brought about that great work of recoining all the current money of the nation. In 1698, he was appointed firſt commiſſioner of the treaſury; and in 1699 was created Baron Halifax. In 1701, the houſe of commons impeached him of ſix articles, which were diſmiſſed by the houſe of lords. He was attacked again in 1702, but without ſucceſs. In 1705, he wrote, An Anſwer to Mr Bromley's Speech in relation to the occaſional Conformity Bill. In 1706, he was a commiſſioner for the union with Scotland; and upon paſſing the bill for the naturalization of the houſe of Hanover, and for ſecurity of the Proteſtant ſucceſſion, he was appointed to carry that act to Hanover. Upon the death of Q. Anne, when K. George I. had taken poſſeſſion of his throne, his lordſhip was appointed firſt commiſſioner of the treaſury, and created earl of Halifax and K. G. He died in 1715. His lordſhip wrote ſeveral other pieces, which, with ſome of his ſpeeches, were publiſhed together in 1716, in 1 vol. 8vo.

(2.) **Montague**, Edward, earl of Sandwich, an illuſtrious Engliſhman, who, from the age of 19, united the qualifications of general, admiral, and ſtateſman; but had ſtrange inconſiſtencies in his character. He acted early againſt Charles I.; he perſuaded Cromwell, whom it is ſaid he admired, to take the crown; and he was zealous for the reſtoration of Charles II. All this is imputed to his unaccountable paſſion for royalty. Upon General Monk's coming into England, he ſailed with the fleet to Holland, and ſoon after he convoyed K. Charles II. to England. For this ſervice he was created knight of the garter, baron Montague, viſcount Hinchinbrooke, and earl of Sandwich; made a member of the privy council, maſter of the king's wardrobe, admiral of the Narrow Seas, and lieutenant-admiral to the duke of York. He performed ſome very eſſential ſervices in the Dutch wars, and loſt his life by refuſing to quit his ſhip, after it was on fire. His body was interred with great ſtate in Henry VII.'s chapel. His lordſhip's writings are, 1. The Art of Metals, tranſlated from the Spaniſh of Alvaro Alonzo Barba, 8vo. 2. Several letters during his embaſſy to Spain, publiſhed with Arlington's letters. 3. A letter to ſecretary Thurloe. 4. Original letters and negociations of Sir Richard Fanſhaw, the earl of Sandwich, the earl of Sunderland, and Sir William Godolphin, wherein divers matters between England, Spain, and Portugal, from 1663 to 1678, are ſet in a clear light; 2 vols 8vo.

(3.) **Montague**, Lady Mary Wortley, was eldeſt daughter of Evelyn duke of Kingſton and the Lady Mary Fielding, daughter of William E. of Denbigh. She was born at Thoreſby in Nottinghamſhire, about 1690. Under Biſhop Burnet ſhe acquired conſiderable knowledge of the Greek, Latin, and French languages. In 1712 ſhe married Edward Wortley Montague, who was ſent ambaſſador to the Porte in 1716, whither ſhe accompanied him. Here we find from her correſpondence, that ſhe had added an acquaintance with the German, Italian, and Turkiſh languages to her other acquirements. After her return ſhe introduced inoculation for the ſmall-pox into this country, as ſhe had ſeen it practiſed with ſucceſs in the eaſt. Her wit and literature led her to form intimacies with all the eminent poets and ſcholars of her brilliant era. Her health declining in 1739, ſhe went to Italy, where ſhe remained till 1761, when her huſband died. She then returned to England; but ſhe ſurvived him only till the 21ſt Aug. 1762. In 1763, a collection of her letters was publiſhed, which had been ſurreptitiouſly obtained; but her grandſon the marquis of Bute has lately given her entire works to the public, in 5 vols. 12mo, containing her Life, Letters, Tranſlation of the Enchiridion of Epictetus, Poems, and Eſſays.

(4.) **Montague**, Edward **Wortley**, ſon of the preceding, paſſed through ſuch variegated ſcenes, that a bare recital of them would ſavour of the marvellous. From Weſtminſter ſchool, where he was placed for education, he ran away thrice. He exchanged clothes with a chimney-ſweeper, and followed for ſome time that ſooty occupation. He next joined a fiſherman, and cried flounders in Rotherhithe. He then ſailed as a cabin-boy to Spain; where he had no ſooner arrived, than he ran away from the veſſel, and hired himſelf to a driver of mules. After thus vagabondiſing it for ſome time, he was diſcovered by the conſul, who returned him to his friends in England. They received him with joy, and a private tutor was employed to recover thoſe rudiments of learning which a life of diſſipation, blackguardiſm, and vulgarity, might have obliterated. Wortley was ſent to the Weſt Indies, where he remained ſome time; then returned to England, acted according to the dignity of his birth, was choſen a member, and ſerved in two ſucceſſive parliaments. His expenſes exceeding his income, he became involved in debt, quitted his native country, and commenced that wandering traveller he continued to the time of his death. Having viſited moſt of the eaſtern countries, he contracted a partiality for their manners. He drank little wine; a great deal of coffee; wore a long beard; ſmoked much; and, even whilſt at Venice, he was habited in the eaſtern ſtyle. He ſat croſs-legged in the Turkiſh faſhion from choice. With the Hebrew, the Arabic, the Chaldaic, and the Perſian languages, he was as well acquainted as with his native tongue. He publiſhed ſeveral pieces. One on the *Riſe and Fall of the Roman Empire.* Another on *The Cauſes of Earthquakes.* He had ſeraglios of wives; but the lady whom he married in England was a waſherwoman, with whom he did not cohabit. When ſhe died without leaving iſſue to him, being unwilling that his eſtate ſhould go to the Bute family, he ſet out for England to marry a young woman already pregnant, whom a friend had provided for him; but he died on his journey.

(5.) **Montague**, Richard, D.D. a learned Engliſh prelate, born in Bucks, about 1577, and educated at King's College, Cambridge, of which he became fellow. In 1616, he was made dean of Hereford; and in 1621, publiſhed an anſwer to Selden's Hiſtory of Tithes. He afterwards engaged in a controverſy with the Papiſts, and publiſhed a piece, entitled, *Appello Cæſarem*, for which he was ſummoned before the houſe of commons, in the firſt parliament of Charles I. and ſubjected to 2000l. bail. The king, however, made him Bp. of Chicheſter in 1628, and tranſlated him to Norwich in 1638, where he died in 1641. Beſides controverſial tracts, ſuch as *An Anſwer to the Gagger of the Proteſtants*, in 1624, &c. he wrote ſeveral learned works, on the doctrines and diſcipline of the church.

(6.) **Montague**, in geography, a townſhip of Maſſachuſetts, in Hampſhire county, on the E. bank of the Connecticut, 18 miles N. of Northampton, and 97 W. by N. of Boſton.

(7.) **Montague**, the northernmoſt townſhip of New Jerſey, in Suſſex county, on the E. bank of the Delaware, 5 miles NE. of Minifink.

(8.) **Montague**, an iſland in the N. Pacific Ocean, 50 miles long and 10 broad, on the NW. coaſt of N. America, at the entrance into Prince William's Sound. Lon. 147° to 148° W. Lat. 59° 50′ to 60° 30′ N.

(9.) **Montague Hills**, hills of N. Carolina. Lon. 81. 30. W. Lat. 35. 40. N.

(10.) **Montague Island**, one of the New Hebrides, in the South Sea, near Sandwich Iſland. Lon. 168. 37. E. Lat. 17. 26. S.

(1.) **MONTAIGNE**, Michael de, a French gentleman, born in Perigord in 1533. His father educated him with great care, and made him learn Latin as other children learn their mother tongue. His tutors were Nicholas Gronchi, who wrote *De Comitiis Romanorum*; William Guerenti, who wrote on Ariſtotle; George Buchannan; and Anthony Muret. He was alſo taught Greek by way of recreation; and was awakened every morning with the ſound of muſic. He was a counſellor in the parliament of Bourdeaux, and afterwards mayor of Bourdeaux. He publiſhed his celebrated *Eſſays* in 1580. He had a great deal of wit and ſubtlety, but no ſmall ſhare of conceit and vanity. The learned are much divided in their opinions about his works. He died in 1592.

(2.) **Montaigne**, or **Montagne**, a caſtle of France, in the dep. of Dordogne, and late province of Perigord, famous for being the birth-place of the celebrated eſſayiſt, **Montaigne**. See N° 1. It lies 25 miles from Perigueux.

(1.) **MONTAIGU**, a town of France, in the dep. of the Vendee, and late province of Poitou; 24 miles W. of Mauleon, and 16½ SSE. of Nantes. Lon. 1. 30. W. Lat. 47. 0. N.

(2.) **Montaigu**, a town of France, in the dep. of Puy de Dome; 21 miles NW. of Riom, and 27 of Clermont.

(3.) **Montaigu**, or **Scherpenheuil**, a town of France, in the dep. of the Dyle, and ci-devant prov. of Auſtrian Brabant; famous for an image of the Virgin, to which many pretended miracles are aſcribed; 3 miles W. of Dieſt, and 15 ENE. of Louvain.

MONTAIGUET, a town of France, in the dep. of Allier; 12 miles N. of Donjon, and 15 E. of Moulins.

MONTAIGUT, a town of France, in the dep. of Lot and Garonne; 4 miles S. of Tournon, and 18 NE. of Agen.

(1.) **MONT-ALBAN**, a town of Spain, in Arragon, with a ſtrong citadel; ſeated on the Martin, 44 miles S. of Saragoſſa, and 92 N. by W. of Valencia. Lon. 0. 30. W. Lat. 41. 9. N.

(2.) **Mont-Alban**, a fortreſs of France, in the dep. of Maritime Alps, and late county of Nice, on the ſea coaſt, between Nice and Ville-Franche. It was taken by the French, in Oct. 1792.

MONTALCINO, a ſmall populous town of Etruria, in Sienna, with a biſhop's ſee; ſeated on a mountain, 17 miles SE. of Sienna, and 44 of Florence. Lon. 11. 30. E. Lat. 43. 7. N.

MONTALEGRE, a town of Portugal, in Tras-los-Montes, 57 miles W. of Braganza.

(1.) **MONTALTO**, an epiſcopal town of Ancona; ſeated on the Monacio, 10 miles N. of Aſcoli, and 45 S. of Ancona. Lon. 13. 30. E. Lat. 42. 54. N.

(2.) **Montalto**, a town of Spain, in Catalonia.

MONTALVAN, a town of Spain, in Cordova.

MONTALVAO, a town of Portugal, in Alentejo, 96 miles NE. of Liſbon. It was taken by Philip V. in 1704.

MONTALYA, a town of Portugal, in Eſtremadura, 28 miles NW. of Beja, and 28 SE. of Setuval.

MONTANANI, a foreſt in Iſtria, which affords excellent wood for ſhip-building.

MONTANARO, a town of Italy, in Placentia, 7 miles SSE. of Placentia.

MONTANASO, a rich town of Italy, in the dep. of the Upper Po, and diſtrict of Lodi, on the Adda.

MONTANBŒUF, a town of France, in the dep. of Charente; 7½ miles NE. of Rochefoucault.

MONTANCHES, a town of Spain, in Eſtremadura, 17 miles N. of Merida.

MONTANINI, Peter, or *Petruccio Perugino*, an eminent landſcape painter, born at Perugia, in 1619. At firſt he was inſtructed by his uncle Peter Barſotti; but was afterwards placed as a diſciple with Ciro Ferri. Yet he did not long adhere to the manner of either of theſe maſters, chooſing to ſtudy under Salvator Roſa; whoſe ſtyle he imitated with exceeding great ſucceſs. His landſcapes were much admired; the rocks, torrents, and abrupt precipices, were deſigned with ſpirit; and his figures had a very uncommon correctneſs, propriety, and elegance. He died in 1689.

MONTANISTS, Chriſtian heretics, who ſprung up about A. D. 171, in the reign of the emperor Marcus Aurelius. They were ſo called from their leader, the hereſiarch Montanus, a Phrygian by birth; whence they are ſometimes ſtyled *Phrygians* and *Cataphrygians*. They formed a ſchiſm, and ſet up a ſociety under the direction of thoſe who called themſelves *prophets*. Montanus, in conjunction with Priſcilla and Maximilla, was at the head of the ſect. Theſe ſectaries made no alteration in the creed. They only held, that the Holy Spirit made Montanus his organ for delivering a more perfect form of diſcipline than what was delivered by the apoſtles. They refuſed communion for ever to thoſe who were guilty of notorious crimes, and believed that the biſhops had no authority to reconcile them. They held it unlawful to fly in time of perſecution. They condemned ſecond marriages, allowed the diſſolution of marriage, and obſerved three lents. The Montaniſts became ſeparated into two branches; one of which were the diſciples of Proclus, and the other of Æſchines The latter are charged with following the heterodoxy of Praxeas and Sabellius concerning the Trinity. See MONTANUS, N° 1.

* MONTANT. *n. ſ.* [Fr.] A term in fencing.—Vat be all you, one, two, tree, four, come for? To ſee thee fight, to ſee thee paſs thy puncto, thy ſtock, thy traverſe, thy diſtance, thy *montant*. *Shakeſpeare.*

(1.) MONTANUS, a heretic of the 2d century, born in Phrygia. He embraced Chriſtianity, in hopes of riſing to the dignities of the church. He pretended to inſpiration; and gave out that the Holy Ghoſt had inſtructed him in ſeveral points, which had not been revealed to the apoſtles. Priſcilla and Maximilla, two enthuſiaſtic women of Phrygia, preſently became his diſciples; and in a ſhort time he had a great number of followers. The biſhops of Aſia, being aſſembled, condemned his prophecies, and excommunicated thoſe who diſperſed them. Afterwards they wrote an account of what had paſſed to the weſtern churches, where the pretended prophecies of Montanus and his followers were likewiſe condemned.

(2.) MONTANUS, Benedict Arias, a moſt learned Spaniſh theologian, born in the dioceſe of Badajoz, about 1528. He aſſiſted at the council of Trent with great reputation; and his merit and writings recommended him to Philip II. of Spain, who employed him in publiſhing a new polyglot bible after the Complutenſian edition, which was printed under the care of Card. Ximenes. This bible was printed at Antwerp, whither Montanus went in 1571; and on his return to Spain he refuſed the biſhopric which Philip offered him for his reward, but ſpent the reſt of his days at Seville, where he died about 1598. Montanus had vaſt erudition, loved ſolitude, was very laborious, never drank wine, and ſeldom ate fleſh.

(3.) MONTANUS, John Baptiſt, an eminent Italian phyſician, ſtyled the *Galen* of his country. He was born at Verona, in 1488; and ſtudied at Padua, where he diſpleaſed his father by preferring phyſic to law; but, though deprived of his aſſiſtance, he ſoon made ſuch progreſs, that he was promoted to the profeſſor's chair at Padua, after having practiſed phyſic with great ſucceſs in ſeveral other cities. His fame became ſo great, that he was invited to Paris, Florence, and Vienna, by Francis I. Duke Coſmo, and Charles V. but preferred his profeſſorſhip at Padua; where he died of the ſtone, in 1551. He wrote many medical and ſome poetical works.

MONTARCHER, a town of France, in the dep. of the Rhone and Loire, 12 miles S of Montbriſon.

MONTARGIL, a town of Portugal, in Eſtremadura, 33 miles NNW. of Evora.

MONTARGIS, a conſiderable town of France, in the dep. of Loiret, and late province of Orleannois, formerly capital of the Gatinois; ſeated on the Loire, near a handſome foreſt, 15 miles S. of Nemours, and 62 of Paris. Lon. 2. 36. E. Lat. 48 1. N.

MONTARORO, a town of Naples, in Principato Citra, 8½ miles N. of Salerno.

MONTARRAGO, Maſcarenhas, a Portugueſe author, born in Liſbon. He wrote, 1. A natural, aſtrological, and political Hiſtory of the World: 2. An account of Oudenarde, and Peter-waradin: with other works. He died in 1730, aged 60

MONTASIO, a mountain of Maritime Auſtria, in Friuli.

MONTASTRUC, a town of France, in the dep. of Upper Garonne; 9 miles NE. of Toulouſe.

(1.) MONTAUBAN, a conſiderable town of France, in the dep. of Lot, ci-devant province of Guienne, and territory of Quercy, with an academy. The fortifications were demoliſhed in 1629, becauſe it took the part of the Hugonots. It is ſeated on the Tarne, 20 miles N. of Toulouſe, and 30 S. of Cahors. Lon. 1. 27. W. Lat. 43. 56 N.

(2.) MONTAUBAN, a town of France, in the dep. of the Drome; 16½ miles E of Nions.

(3.) MONTAUBAN, a town of France, in the dep. of Ille and Vilaine; 5 m. NW. of Montfort.

MONTAUD, a town of France, in the dep. of Rhone and Loire; 9 miles S. of St Etienne.

MONTAUDIN, a town of France, in the dep. of Maine; 5 miles N. of Ernee, and 14 WNW. of Maine.

MONTAUSIER, Julia, ducheſs of, an ingenious French lady, daughter of the marchioneſs of Rambouillet. She was governeſs to the dauphin, and was highly eſteemed by the greateſt wits of her age. She died in 1671, aged 64. Her life was publiſhed at Paris in 1731.

(1.) MONTAUT, a town of France, in the dep. of Landes; 4 miles WSW. of St Sever, and 9 SE. of Tarbes.

(2.) MONTAUT DE CRIEUX, a town of France, in the dep. of Arriege; 12 miles NW. of Mirepoix.

(3.) MONTAUT LE JEANE, a town of France, in the dep. of Lot and Garonne; 9 m. E. of Lauzun.

MONTAUTO, a town of Naples, in Principato Ultra; 5 miles N. of Benevento.

MONTBART, a town of France, in the dep. of Cote d'Or; 35 miles NW. of Dijon.

(1.) MONTBAZON, a town of France, in the dep. of Indre and Loire, and late prov. of Touraine, agreeably ſeated at the foot of a hill, on which there is an ancient caſtle, 135 miles SW. of Paris. Lon. 0. 45. E. Lat. 47 17. N.

(2.) MONTBAZON, a town of France, in the dep. of Herault, 10 miles SW. of Montpellier.

(1.) MONTBELIARD, or (1.) MONTBELLIARD, a ci-devant principality of Germany, inſulated in France; now included in the dep. of the Upper Rhine.

(2.) **Montbelliard**, a town of France, late capital of the above principality, now in the department of the Upper Rhine; ſeated at the foot of a rock, on which there is a large, ſtrong caſtle, in the form of a citadel. The prince of Montbelliard had a voice and ſeat in the college of the princes of the empire. It was taken by the French in 1674, who demoliſhed the fortifications, but it was reſtored to the prince. It is ſeated near the rivers Alaine and Doux, 33 miles W. of Baſle, and 45 NE. of Bezançon. Lon. 6. 50. E. Lat. 47. 31. N.

(3.) **Montbelliard**, Philibert Guenau De, a French naturaliſt, born in 1720. He aſſiſted Count Buffon in his Ornithology and Entomology. He died in 1785.

MONTBELTRAN, a town of Spain, in Old Caſtile.

MONTBERON, a town of France in the dep. of Charente, 6 mile SE. of Rochefoucault.

(1.) **MONT-BLANC**, a town of Spain, in Catalonia, 15 miles N. of Tarragon. Lon. 1. 5. E. Lat. 41. 20. N.

(2.) **Mont Blanc**, a department of France, comprehending the ci-devant duchy of Savoy. See Blanc, N° II. and Savoy.

(3.) **Mont Blanc**, a mountain of France. See Blanc, N° III. § 1—5.

MONTBOISSER, a town of France in the dep. of Puy de Dome, 10 miles E. of Iſſoire.

Mont-Bozon, a town of France in the dep. of Upper Saone, 10 miles SE. of Veſſul.

MONTBRISON, a conſiderable town of France, in the dep. of Rhone and Loire, and late capital of the ci-devant prov. of Forez, ſeated on the Veziza, 40 miles W. of Vienna, and 250 S. by E. of Paris. Lon. 4. 27. E. Lat. 45. 32. N.

MONTBRON, a town of France, in the dep. of Charente, 15 miles E. of Angouleſme.

MONTBRUN, two towns of France: 1. in the dep. of the Drome, 18 miles SE. of Nions: 2. in that of Upper Garonne, 9 miles S. of Rieux, and 18 E. of St Gaudens.

MONTCEAUX, a town of France, in the dep. of Saone and Loire, 4½ miles N. of Mareigny.

(1.) **MONTCENIS**, a town of France in the dep. of Saone and Loire, 10½ m. SSE. of Autun.

(2.) **Mont Cenis**, a mountain of France, in the department of Mont Blanc. See Cenis. On this mountain a deciſive victory was obtained by the French under Gen. Dumas, on the 10th May 1794, over the Sardinians, who loſt 850 priſoners, beſides many killed and wounded.

Mont Chevrier, a town of France, in the dep. of Indre, 12 miles SE. of Argenton.

MONTCORNET, a town of France in the dep. of Aiſne, 9 miles SE. of Vervins, and 18 NE. of Laon.

MONTDAUPHIN, a town of France in the dep. of Upper Alps, on a rock almoſt ſurrounded by the Iſere, 9 miles N. of Embrun, and 15 S. of Briançon.

Mont Didier, an ancient town of France, in the dep. of the Somme, and late prov. of Picardy, where the kings of France formerly had a palace and kept their court. It is ſeated on a mountain, 24 miles SE. of Amiens, and 58 N. of Paris. Lon. 2. 34. W. Lat. 49. 39. N.

Mont Doubleau. See Mondoubleau.

MONTDRACON, a town of France in the dep. of Drome, 8 miles NW. of Orange, and 20 S. of Montelmart.

MONTE, a town of France, in the iſland and dep. of Corſica, 18 miles S. of Baſtia.

(1, 2.) **Monte Albano**, two towns of Naples: 1. in Baſilicata, 4 miles NW. of Turſi: 2. in Otranto, 6 miles W. of Oſtuni.

(3.) **Monte Albano**, a town of Sicily, in the valley of Demona, 17 miles SW. of Melazzo.

Monte Alto, a town of Italy, in Ancona.

Monte Baldo, a mountain of Italy, in the department of the Mincio, diſtrict and late province of Verona, between the Adige and Lake Garda. It is the higheſt mountain in Verona, and is remarkable for its rare plants, ſharp rocks, and ſea ſhells, found on the top of it. On this mountain a battle was fought in Auguſt 1796, between the French and Auſtrians, in which the latter were defeated.

Monte Barone, a town of Naples, in Capitanta, 13 miles SSW. of Vieſte.

(1.) **Monte Bello**, a diſtrict in Vicentine, containing 1 town and 15 villages.

(2.) **Monte Bello**, a town in the above diſtrict, 13 miles SW. of Vicenza.

(3, 4.) **Monte Bello**, two towns of Naples: 1. in Abruzzo Citra, 20 miles SE. of Ranciano: 2. in Abruzzo Ultra, 15 miles ENE. of Aquila.

MONTEBOURG, a town of France, in the dep. of the Channel, 12 miles N. of Carentan.

Monte Bruno, a town of Liguria, 15 miles NE. of Genoa.

Monte Casino, a town and mountain of Naples in Lavora, with a celebrated abbey, where Benedict founded his order, and wherein ſeveral princes ended their days; 13 miles SE. of Sora.

Monte Catino, a town of Etruria.

MONTECCHIO, a conſiderable town of Italy, in the department of Croſtolo, and late duchy of Reggio, 10 miles SE. of Parma, and 8 NW. of Reggio. Lon. 15. 54. E. Lat. 38. 8. N.

MONTECH, a town of France, in the dep. of Upper Garonne, 23 miles NW. of Toulouſe.

(1.) **Monte Chiaro**, a quadra, or territory of Italy, in the department of the Mella, diſtrict and late province of Breſcia, containing 6800 citizens in 1797.

(2.) **Monte Chairo**, a town in the above territory, 10 miles SE. of Breſcia; near which the French defeated the Auſtrians in Aug. 1796.

(3.) **Monte Chairo**, a town of Sicily in Mazara.

(1.) **Monte Christ**, a chain of mountains in Hiſpaniola, which extend parallel to the N. coaſt of the iſland, from the bay ſo named from them, to the bay of Samana on the E.

(2—6.) **Monte Christ**, a cape, bay, town, diſtrict, and river, on the N. ſide of St Domingo. The town is in the form of an amphitheatre, 200 fathoms ſquare, and before the late dreadful convulſions, contained about 3000 ſouls. The cape is a very high hill, ſeen at 42 miles diſtance in a clear day. Lon. 74° 9′ 30″ W. of Paris. Lat. 19° 54′ 30″ N.

Monte Christo, a mountain and town of Peru, in Quito.

Monte Corvino, a town of Naples in Principato Citra, 8½ miles E. of Salerno.

MONTECUCULI, Raymond, generaliſſimo of the emperor's army, and one of the greateſt commanders of his time, was born in Modena, of a diſtinguiſhed family, in 1608. Erneſt Montecuculi his uncle, who was general of the artillery in the Imperial army, reſolved that he ſhould ſerve firſt as a common ſoldier, and that he ſhould paſs through all the military degrees before he was raiſed to command. This he did with applauſe. In 1644, when he was at the head of 2000 horſe, he ſurpriſed by a precipitate march 10,000 Swedes, who laid ſiege to Nemeſſau in Sileſia, and obliged them to abandon their artillery and baggage; but ſoon after he was defeated and taken priſoner by Gen. Banier. Having obtained his liberty at the end of two years, he joined his troops to thoſe of John de Wert; and defeated general Wrangel in Bohemia, who was killed in the battle. In 1657 the emperor made him general marſhal de camp; and ſent him to the aſſiſtance of John Caſimir, king of Poland. Montecuculi vanquiſhed Ragotzi prince of Tranſylvania, drove out the Swedes, and diſtinguiſhed himſelf in an extraordinary manner againſt the Turks in Tranſylvania and Hungary. In 1673 he commanded the Imperial army againſt the French, and took Bonne: he then proceeded with feint marches to deceive Turenne, in which he obtained great honour. However, the command of that army was taken from him in 1674, but was reſtored to him in 1675, that he might make head againſt the great Turenne. All Europe had their eyes fixed on theſe two able warriors, who then made uſe of all the ſtratagems which genius and military knowledge were capable of ſuggeſting. Marſhal Turenne was obtaining the ſuperiority when he was taken off by a cannon ball. Montecuculi wept at the death of ſo formidable an enemy, and beſtowed upon him the greateſt praiſes. The great prince of Conde, being the only remaining French general fit to oppoſe Montecuculi, was ſent to the Rhine, and ſtopped the Imperial general; who conſidered this laſt campaign as the moſt glorious of his life, not from his being conqueror, but for his not being conquered, when he was oppoſed by a Turenne and a Conde. He ſpent the reſt of his life at the Imperial court; and died at Lintz in 1680. He wrote *Memoirs*: the beſt edition is that of Straſburg, in 1735.

Monte Falco, a town of Italy, in the territory of the church and duchy of Spoletto; ſeated on a mountain near the river Clitunno, 12 miles W. of Spoletto. Lon. 12. 40. E. Lat. 42. 58. N.

(1.) Monte Falconi, a town in Friuli, with a caſtle; near the river Ponzano, 10 miles NW. of Aquileia, and 12 NW. of Trieſte. Lon. 13. 0. E. Lat. 46. 4. N.

(2.) Monte Falcone, a town of Naples, in Moliſe, 18 miles NE. of Moliſe.

(3.) Monte Falcone, a cape of Sardinia.

Monte Fenera, a mountain in Treviſano, 5 miles E. of Ciſmone.

Monte Fiascone, a ſmall but populous town of Italy, in the territory of the church, with a biſhop's ſee; ſeated on a mountain, near the lake Bolſena, in a country abounding with excellent wine, 12 miles SW. of Orvieto, and 45 NW. of Rome. Lon. 12. 4. E. Lat. 42. 26. N.

Monte Foscoli, a town of Eſtruria.

MONTEFRIN. See Montfrin.

MONTEFRIO, a town of Spain, in Granada.

MONTEGIO, a town of Liguria, 12 miles N. of Genoa.

(1.) MONTEGO, a river of Jamaica, which runs into Montego Bay.

(2.) Montego Bay, a bay on the N. coaſt of Jamaica, 20 miles E. by N. of Lucca harbour, and W. of Martha Brae.

(3.) Montego Bay, a town of Jamaica, and next to Kingſton, the moſt flouriſhing in the iſland. It contains above 350 houſes, and carries on a very conſiderable commerce with Great Britain and our remaining colonies in North America. The harbour is capacious; but rather expoſed to the N. winds, which at certain ſeaſons blow with great violence. It is the capital of the pariſh of St James; in which are 70 ſugar plantations, 70 other ſettlements, and 27,000 ſlaves.

MONTEI, a town of France, in the dep. of the Po, and late principality of Piedmont; 12 miles ESE. of Chivaſco.

MONTEJAN, a town of France, in the dep. of Maine and Loire, 10 miles SW. of Angers.

Monte Ignoso, a town of Lucca.

Montejicar, a town of Spain, in Granada.

(1.) MONTEITH, a diſtrict of Scotland, in the S. part of Perthſhire; ſo named from the river Teith, which runs through it.

(2.) Monteith, a lake of Perthſhire, in the above diſtrict, and in the centre of the pariſh of Port of Monteith; with 2 ſmall iſlands, and a peninſula; 5 miles in circumference. It abounds with perches, pikes, eels, and large trouts.

(3.) Monteith, Port of. See Port, N° 43.

MONTEL, a town of France, in the dep. of Puy de Dome, 18 miles SSW. of Montaigh.

Monte Leone, a town of Naples, in Calabria Ultra, on a hill, overlooking the ſea, 12 miles NE. of Nicotera. It was anciently called Vibo Valencia; and was greatly damaged by the earthquakes in 1638 and 1783.

Monte Lerzi, a town of Naples, in Bari.

MONTELIER, a town of France, in the dep. of Drome, 10 miles E. of Valence.

MONTELIMART, a populous town of France, in the dep. of Drome, and late prov. of Dauphiny. Its inhabitants were among the firſt in France who embraced the Proteſtant religion. It has manufactures of ſilk, wool, and leather; and lies 25 miles S. of Valence, and 325 S. by E. of Paris. Lon. 4. 55. E. Lat. 44. 33. N.

MONTELLA, a town of Naples, in Principato Ultra, 12 miles W. of Conza.

MONTELLIER, a town of France, in the dep. of Drome, 6 miles S. of Romana and Valence.

MONTELON, a town of France, in the dep. of Saone and Loire, 3 miles W. of Autun.

Monte Lugo, a town of Parma, 11 miles S. of Parma.

Monte Maggiore, a mountain of Maritime Auſtria, in Iſtria.

Monte Major, a town of Spain in Cordova.

Monte Marano, a populous town of Naples, in Principato Ultra, ſeated on the Calore, 18 miles S. of Benevento. Lon. 15. 0. E. Lat. 40. 48 N.

Monte Mayer, George De, a Spaniſh poet, born in Caſtile, who flouriſhed under Philip II. His Poems were publiſhed in 2 vols 8vo. He died in 1560.

Monte Mescoso, a town of Italy in the dep. of Panaro, diſtrict and late duchy of Modena; 25 miles WSW. of Modena.

Monte Messoli, a town of Naples, in Otranto.

Monte Mileto, a town of Naples, in Principato Ultra, 9 miles SSW. of Benevento.

(1.) **Monte Moro Novo**, or *Monte-major el novo*, a conſiderable town of Portugal, on the road from Liſbon to Badajoz. Lon. 9. 35. W. Lat. 38. 42. N.

(2.) **Monte Moro Velo**, or *Monte-major el velho*, a town of Portugal in Beira, with a very large caſtle, ſeated in a fertile country, 10 miles SW. of Coimbra, and 83 N. of Liſbon. Lon. 8. 9. W. Lat. 40. 5. N.

MONTENAY, a town of France, in the department of Mayenne; 10 miles W. of Mayenne.

MONTENDRE, a town of France, in the dep. of Lower Charente; 7½ miles NW. of Montlieu.

MONTENEGRIMS, or, MONTENEGRINS, } a brave people in Albania, who inhabit **Monte Negro**. They profeſs the Chriſtian religion, and bear a great antipathy againſt the Turks.

(1.) **Monte Negro**, a mountainous diſtrict in Albania, the 15th and laſt of the new provinces acquired by the emperor, by the treaties of Campo Formio and Luneville. Dr Oppenheim mentions it in his liſt of the provinces of Maritime Auſtria, but has totally omitted all deſcription of the country and people. See laſt article.

(2.) **Monte Negro**, the capital of the above diſtrict; 8 miles E. of Raguſa.

(3.) **Monte Negro**, a town of Naples, in Capitanata, 8 miles W. of Termoli.

(4.) **Monte Negro**, a diſtrict in the N. part of Syria; near Caramania.

Monte Nero, a town of Naples, in Calabria Citra; 17 miles ESE. of Coſenza.

MONTENOISON, a town of France, in the dep. of Nyevre, 15 miles S. of Clamecy, and 16½ S. of Charite.

Monte Notte, a mountain of Italy, on the borders of Liguria, and the late duchy of Montferrat; where, on the 14th April 1796, the French under Bonaparte defeated the Auſtrians under Beaulieu, after killing 1500 men, and taking 2500 priſoners. It lies 7 miles N. of Savona, and 12 S. of Acqui.

Monte Peloso, an epiſcopal town of Naples, in the Baſilicata; ſeated on a mountain near the Baſiento, 14 miles E. of Cirenza. Lon. 16. 28. E. Lat. 40. 46. N.

Monte Philippo, a fort of Etruria, near Port Hercole. In May 1712, it was beſieged by the imperial troops under Gen. Zumzungen: the attack and defence were conducted with equal bravery, but at length it ſurrendered at diſcretion; when the victors tarniſhed their glory by maſſacring part of the garriſon.

Monte Pinello, a town of Naples, in Calabria Citra, 6 miles S. of Umbriatico.

Monte Pulsiano, a town of Etruria, with a biſhop's ſee; ſeated on a high mountain, near the Chiana, in a country noted for excellent wine, 25 miles SE. of Sienna, and 50 S. by E. of Florence. Lon. 11. 49. E. Lat. 43. 10. N.

Monte Reale, a town of Sardinia.

MONTEREAN, a town of France, in the dep. of Seine and Marne, at the conflux of the Seine and Yonne It was memorable for the murder of John D. of Burgundy, on the 10th Sept. 1419, in preſence of the dauphin, (afterwards Charles VII.) which made his ſon, Philip D. of Burgundy, invite the Engliſh into France in revenge. (See **France**, § 33.) It lies 12 miles NE. of Nemours, and 15 SE. of Melun.

MONTEREY, a town of Spain in Galicia.

* **MONTERO** *n. ſ.* [Spaniſh.] A horſeman's cap.—His hat was like a helmet, or Spaniſh *montero. Bacon.*

Monte Rosi, or Monte Rossi, } a town of Italy, in the Pope's territories, in the province of Patrimonio, mid-way between Rome and Viterbo.

(1.) **Monte Rosso**, a town of Corſica.

(2.) **Monte Rosso**, a town of Liguria, 7 miles W. of Spezza.

MONTESA, a very ſtrong town of Spain, in Valentia. It is the ſeat of an order of knighthood ſo named; and is 5 miles from Xativa. Lon. 0. 10. W. Lat. 39. 0. N.

Monte Sagra, a town of Naples, in Capitanata.

Monte Sancto, the ancient **Athos**, a mountain of Turkey in Europe, on the gulph of Conteſſa. (See **Athos**.) It is called *Monte Sancto*, or the *Holy Mount*, becauſe there are 22 monaſteries on it, in which there are 4000 monks. It is 17 m. S. of Salonichi. Lon. 24. 39. E. Lat. 40 27 N.

Monte St Angelo. See **Angelo, St.** N° 6, 8, 9.

Monte Sano, a town of Naples, in Principato Citra, 12 miles ENE. of Policaſtro.

(1.) **Monte Santo**, a town of Portugal, in Beira.

(2.) **Monte Santo**, a town of Naples, in Calabria Ultra, 17 miles ENE of Nicotera.

Monte Saracino, a town of Naples, in Capitanata, 6 miles SE. of Monte St Angelo.

Monte Sarchio, a town of Naples, in Principato Ultra, 10 miles SW. of Benevento.

Monte Scagliosa, a town of Naples, in Baſilicata, 7 miles S. of Materea.

MONTESPAN See **Mortimar.**

(1.) **MONTESQUIEU**, Charles **de Secondat**, baron, a moſt illuſtrious Frenchman, deſcended from a noble family of Guienne, was born at the caſtle of Brede, near Bourdeaux, in 1689. He ſhowed an early genius, and at the age of 20 had prepared materials for his *Spirit of Laws*, by well digeſted extracts from thoſe immenſe volumes of civil law which he had ſtudied. He became a counſellor of the parliament of Bourdeaux in 1714, and in 1716 was received preſident *a mortier*. In 1721 he publiſhed his *Perſian Letters*; in which, under the ſcreen of Oriental manners, he ſatirized thoſe of France. He did not avow this publication, but was no ſooner pointed out as the author, than zeal and envy united at once againſt the works. He was received into the French academy in 1728; and having quitted his civil employments, he travelled through Germany, Italy, Switzerland, Holland, and England, in which laſt country he reſided three years, and contracted intimacies with the greateſt men then alive. On his return he retired for two years to his eſtate at Brede, where he finiſhed his work *On the Cauſes of the Grandeur and Declenſion of the Romans;* which appeared in 1734. The reputation acquired by this work only cleared the way for his great undertaking, the *Spirit of Laws,* which was printed at Geneva, in 2 vols 4to. 1750. This was immediately attacked in a multitude of illiberal anonymous pamphlets. Monteſquieu drew up a defence of it; which for truth, moderation, and delicacy of ridicule, may be regarded as a model. He died at Paris on the 10th Feb. 1755. His virtues did honour to human nature, his writings juſtice. He was of a ſweet, gay, and even temper. His converſation was ſpirited, agreeable, and inſtructive. Beſides the above works, he wrote ſeveral ſmall pieces, as the Temple of Gnidus, Lyſimachus, and Eſſay upon Taſte, which is left unfiniſhed. His works have been collected ſince his death, and printed at Paris in a ſplendid edition, in 4to; and have all been tranſlated into Engliſh.

(2.) MONTESQUIEU, a town of France, in the dep. of Upper Garonne; 4½ miles NW. of Villefranche, and 15 SSE. of Toulouſe.

(3.) MONTESQUIEU DE VALUESTRE, a town of France, in the dep. of Upper Garonne, 4 miles SSE. of Rieux, and 25½ S. of Toulouſe.

MONTESQUIOU, a town of France in the dep. of Gers, 5 miles NNW. of Mirande, and 11 WSW. of Auch.

MONTET, a town of France, in the dep. of Allier, 6 miles NW. of Montmarult.

* MONTETH. *n. ſ.* [from the name of the inventor.] A veſſel in which glaſſes are waſhed.—

> New things produce new words, and thus *Monteth,*
> Has by one veſſel ſav'd his name from death. *King.*

MONTE VELINO. See VELINO.

MONTE VERDE, a town of Naples, in Principato Ultra, with a biſhop's ſee; 60 miles E. of Naples. Lon. 15. 42. E. Lat. 40. 51. N.

MONTE VETERE, a town of Naples, in Baſilicata, 6 miles S. of Matora.

MONTEUX, a town of France, in the dep. of the Mouths of the Rhone, 10 miles NE. of Avignon, and 3 SW. of Carpentias.

MONTEY, a town of Switzerland, in the Valais, now annexed to France, 9 miles N. of Martigny.

MONTEZIA, a town of Cuba, 25 miles SSE. of Havanna.

MONTEZUMA, or MONTEÇUMA, was emperor of Mexico when Cortez invaded that country in 1518, who defeated, loaded him with chains, and obliged him to acknowledge himſelf in public the vaſſal of Charles V.; in name of tribute for which homage, Cortez received 600,000 merks of pure gold. Montezuma ſoon afterwards fell a ſacrifice to his ſubmiſſion to the Spaniards. He and Alvaro, the lieutenant of Cortez, were beſieged in the palace by 200,000 Mexicans. The emperor propoſed to ſhow himſelf to his ſubjects, that he might perſuade them to deſiſt from the attack: but the Mexicans no longer conſidered him in any other light but as the ſlave of foreign conquerors. In the midſt of his ſpeech, he received a blow with a ſtone, and he expired ſoon after, A. D. 1520. (See CORTES, N° 3; and MEXICO, § 6—9.) This unfortunate prince left two ſons and three daughters, who embraced the Chriſtian faith. The eldeſt ſon obtained from Charles V. lands, revenues, and the title of Count de Montezuma. He died in 1608; and his family is one of the moſt powerful in Spain.

MONTFAUCHE, a town of France, in the dep. of Nievre, 9 miles N. of Chateau-Chinon.

(1.) MONTFAUCON, Bernard DE, a learned Benedictine of the congregation of St Maur, famous for his knowledge in Pagan and eccleſiaſtical antiquities, was born of an ancient and noble family in Languedoc, in 1655. He ſerved for ſome time in the army; but the death of his parents mortified him ſo much, that he commenced Benedictine monk in 1675, and applied himſelf to ſtudy. Though his life was long, healthy, retired, and laborious, his voluminous publications ſeem ſufficiently to have employed the whole; excluſive of his greateſt undertaking, for which he will be always memorable. This was his *Antiquité expliqué,* written in Latin and French, illuſtrated with elegant plates, in 10 vols folio; to which he added a ſupplement of 5 vols. He died at the abbey of St Germain in 1741.

(2—4.) MONTFAUCON, 3 towns of France, viz. 1. in the dep. of Mayne and Loire, 10 miles W. of Chollet, and 16 S. of Amiens: 2. in that of the Meuſe, 5 miles NE. of Varennes, and 10½ N. of Clermont: 3. in that of Upper Loire, 9 miles SE. of Moniſtrol, and 21 NE. of Puy.

MONTFERRAND, a town of France, in the department of Puy de Dome; 1 mile N. of Clermont. See CLERMONT, N° 4.

MONTFERRAT, a ci-devant province and duchy of Italy, now annexed to the French empire with the reſt of Piedmonteſe, and included in the department of Marengo. It was bounded on the E. by the late duchy of Milan, and part of the territory of Genoa; on the N. by the Vercelleſe and Canaveſe; on the W. by Piedmont; and on the S. by Liguria, whence it is ſeparated by the Appenine mountains. It contains 200 towns and caſtles; and is very fertile and well cultivated, abounding in corn, wine, oil, and ſilk.

MONTFERRIER, a town of France, in the dep. of Arriege, 9 miles ENE. of Taraſcon, and 12 S. of Mirepoix.

(1.) MONTFORT, Simon, Count of, deſcended from an illuſtrious and flouriſhing family, was lord of a ſmall town of the ſame name 10 leagues from Paris. He was one of the greateſt generals of his age, and he diſplayed his bravery in a voyage beyond ſeas, and in the wars with the Engliſh and Germans. The ſtrength of his conſtitution enabled him to ſupport the ſevereſt labours of the field, and his majeſtic ſtature diſtinguiſhed him in battle. In the greateſt dangers he poſſeſſed the utmoſt coolneſs and preſence of mind: he obſerved every emergency; and was ready to bring aſſiſtance, while he himſelf was employed in attacking the braveſt of his enemies; but he was guilty of great cruelties after victory. He was appointed to conduct the cruſades againſt the Albigenſes in 1209. He took Beziers and Carcaſſonne, raiſed the ſiege of Caſtelnau and gained a great victory in 1213 over Peter king of Arragon, Raimond VI. count of Toulouſe, and the counts of Foix and Cominges was killed at the ſiege of Toulouſe on the 25th June 1218 by a ſtone thrown by a woman. His younger ſon afterwards made a great figure in England under the title of earl of Leiceſter.

(2.) **MONTFORT**, a handſome and ſtrong town of Holland, in the dep. of the Rhine, and late province of Utrecht, with an ancient caſtle, ſeated on the Yſſel, 7 miles S. by E. of Utrecht. Lon. 5. 0. E. Lat. 52. 4. N.

(3.) **MONTFORT**, a town of France in the dep. of Ille and Vilane, and late province of Upper Bretagne, ſeated on the river Men, 12 miles from Rennes. Lon. 1. 58. W. Lat. 48. 8. N.

(4.) **MONTFORT**, a town of Germany, in the circle of Suabia, on the confines of Tirol, 16 miles S. of Lindow, and the lake Conſtance. It is capital of a country of the ſame name, which has been almoſt all purchaſed by the houſe of Auſtria. Lon. 9. 51. E. Lat 47. 22. N.

(5.) **MONTFORT DE LEMOS**, an ancient town of Spain, in Galicia, with a magnificent caſtle, where the Comarca of Lemos reſides. It is ſeated in a fertile country, 25 miles NE. of Orenſa, and 55 SE. of Compoſtella. Lon. 7. 9. W. Lat. 42. 28. N.

(6.) **MONTFORT L'AMULY**, a town of France, in the department of the Seine and Oiſe, and late prov. of the Iſle of France, 25 miles from Paris. Lon. 2. 50. E. Lat. 48. 45. N.

(7.) **MONTFORT LE ROTROU**, a town of France, in the dep. af the Sarte, 9 miles ENE. of Mans.

MONTFRIN, a town of France, in the dep. of the Gard, 6 miles N. of Beaucaire, and 12 ENE. of Niſmes.

MONTGATZ, a town of Lower Hungary in the county of Pereczas, with a fortreſs compoſed of 3 caſtles, ſeated on a craggy rock. It is encompaſſed with a great moraſs, and art and nature have rendered it almoſt impregnable. It was defended by the Princeſs Ragotſky, wife of Count Tekeli, when beſieged by an army of the Imperialiſts, who were obliged to raiſe the ſiege in 1688.

MONTGERON, Lewis Baſil Carre DE, was born at Paris, A. D. 1686. His father was maſter of requeſts. He was ſcarcely 25 years of age when he purchaſed the place of counſellor in parliament, where by his wit and external qualifications he gained conſiderable reputation. He was given up to irreligion and vice, when in 1731, he was converted by witneſſing, according to his own account, miracles at the tomb of Deacon Paris. He had not long been the diſciple of Janſeniſm when he ſuffered perſecution. When the chamber of inqueſts was baniſhed in 1732, he was ſent into the mountains of Auvergne, where he collected the proofs of the miracles wrought at Abbé Paris's tomb, and compoſed a *Demonſtration of them*, which in 1737 he preſented to the king at Verſailles, and for which he was confined till his death in 1754.

MONTGISCARD, a town of France, in the dep of the Upper Garonne, 7½ miles NW. of Villefranche, and 12 SSE. of Toulouſe.

(1.) **MONTGOMERY**, James, Lord of Lorges in the Orleannois, one of the braveſt men of his age, and famous under the title of *Loges* in the wars of Francis I. In 1545, he ſucceeded John Stuart count d' Aubigny in the command of the 100 archers in the Scotch guard. He wounded Francis I. in the chin with a firebrand, in ſome frolic with that prince. This accident occaſioned the wearing of long beards in France for 50 years Lorges died aged above 80, a ſhort time after Henry II. He obtained the title of count de Montgomery in 1553, which he claimed as belonging to his anceſtors, and as being deſcended, by the earls of Eglinton in Scotland, from a younger ſon of the ancient houſe of Montgomery in England. According to a memoir given by the family to the author of the *Genealogical Dictionary*, James was the ſon of Robert Montgomery, who left Scotland and entered into the ſervice of the French king about the beginning of the reign of Francis I. and this Robert was grandſon to Alexander Montgomery, couſin by the mother's ſide to James I. king of Scotland.

(2.) **MONTGOMERY**, Gabriel DE, count Montgomery in Normandy, the ſon of the preceding, (N° 1.) was remarkable for his valour and noble achievements, but ſtill more ſo for occaſioning the death of Henry II. by accidentally wounding him in the eye at a tournament, in 1559. After this unlucky accident, Montgomery viſited Italy and other foreign countries; and did not return to France till the commencement of the civil wars, when he joined the Proteſtants, and became one of their principal leaders. In 1562, he defended Rouen againſt the royal army with great valour. The city being at length taken by ſtorm, he ſtept into a galley; and having ſurmounted by dint of rowing a chain which had been thrown acroſs the Seine at Caudebec, to prevent ſuccours from England, he eſcaped to Havre. In 1569 he was ſent to the aſſiſtance of Bearn which the Catholics, under Terrides, had almoſt entirely wreſted from the Q. of Navarre. He executed this commiſſion with ſo great diſpatch, that Terrides was obliged to raiſe the ſiege of Navarreins, and retire with precipitation to Orthez. Montgomery purſued him to this city, which he took by aſſault; and Terrides and his principal officers were taken priſoners. After this, the reſt of Bearn ſubmitted. He was at Paris at the time of the maſſacre on St Bartholomew's day 1572, and narrowly eſcaped. He took refuge with his family, firſt in the iſland of Jerſey and afterwards in England. In 1573, he carried a conſiderable fleet, which he had armed and fitted out in England, to the relief of Rochelle, which was then beſieged by the Catholics: But, perhaps diſtruſting his forces, he left the road without fighting the Catholic fleet, and went to pillage Belleiſle. Having diſbanded his fleet, he returned to England to Henry de Champernon, his ſon-in-law, coaſt admiral of Cornwall. On the renewal of a war in France in 1573, Montgomery then in Jerſey, paſſed over into Normandy, and joined the Proteſtant nobility of that province. Matignon, lieutenant-general in Lower Normandy, to whom Catherine de Medicis had given a particular charge to endeavour to ſeize the Count, came unexpectedly upon him in Saint Lo, and laid ſeige to that city. On the evening of the 5th day of the ſeige, Montgomery left St Lo with between 60 and 80 horſe, forced the guard in the ſuburbs, and eſcaped amid a ſhower of muſket bullets, without loſing a ſingle man, leaving the command of the place to Coulombieres Francis de Briqueville. Montgomery arrived at Domfront May 7, 1754, with only 20 followers, intending to make no longer a ſtay in that place than was neceſſary to recruit them after the fatigues of ſo rapid a march. The ſame day he was joined by ſeveral gentlemen with a company of 40 horſe.—Meanwhile Matignon, enraged at having loſt his prey, flew at the head of a party of horſe, and arrived on the 9th before Domfront. He blocked up the place and attacked it with ſuch violence, that Montgomery was ſoon obliged to retire into the caſtle with the garriſon, amounting to only 150 men. He ſuſtained a furious aſſault, fought with the greateſt boldneſs and obſtinacy, and expoſed himſelf in the breach like one who wiſhed for death. Perceiving, however, that his ſoldiers partly by the fire of the enemy, and partly by conſtant deſertion, were reduced almoſt to nothing, he capitulated on the 27th of May. He was carried to Paris, tortured and beheaded in 1574. Montgomery married in 1549 Eliſabeth de la Fouche, of a noble family in Brittany, by whom he left ſeveral children.

(4.) MONTGOMERY, a county of Maryland, on the Patomac; containing 11,973 citizens and 6030 ſlaves in 1797.

(5.) MONTGOMERY, a townſhip of Maſſachuſetts, in Hampſhire county, containing 449 citizens in 1795.

(6.) MONTGOMERY, a county of New York, formerly called TRYON, but changed by act of Congreſs, in 1784, in honour of Gen. Montgomery. It is bounded on the E. by Saratoga, S. by Schoharie, SW. by Otſego, W. and N. by Herkimer counties. It contained 28,848 citizens in 1791; and by the cenſus 1796 was divided into 8 townſhips. Johnſton is the capital. It has 3379 qualified electors.

(7.) MONTGOMERY, a townſhip of New York, in Ulſter county; containing 3327 citizens, 497 electors, and 236 ſlaves, in 1796.

(8.) MONTGOMERY, a county of North Carolina, in Saliſbury diſtrict, containing 3891 citizens, and 834 ſlaves in 1797.

(9.) MONTGOMERY, a county of Pennſylvania, 33 miles long and 17 broad, NW. of Philadelphia county. It is divided into 26 townſhips, and contained 22,815 citizens, and 114 ſlaves in 1796. It has 61 ſaw mills, 96 griſt mills, 10 paper mills, 6 fulling mills, and 4 forges. The capital is Norriton.

(10, 11.) MONTGOMERY, a townſhip in the above county, and another in Franklin county.

(12.) MONTGOMERY, a new county of Teneſſee, in Mero diſtrict.

(13.) MONTGOMERY, a townſhip of Vermont, in Franklin county.

(14.) MONTGOMERY, a county of Virginia, S. of Botetoart county, 100 miles long and 44 broad. It has lead mines. Chriſtianſburg is the capital.

(15.) MONTGOMERY, a city of North Wales, the capital of the county, 158 miles from London, ſo named from Roger de Montgomery earl of Shrewſbury, who built the caſtle. It is called by the Welch *Tre Valdwin*, i. e. *Baldwin's Town*: having been built by Baldwin, lieutenant of the marches of Wales, in the reign of William I. The Welſh, after having put the garriſon to the ſword, demoliſhed it in 1095; but Henry III. rebuilt it, and granted it the privileges of a free borough, with other liberties. It is a large and well built town, in a healthful ſituation and fertile ſoil. It ſends a member to parliament. It has a weekly market, and 4 fairs.

(16.) MONTGOMERY, or MONTGOMERY-SHIRE, } a county of North Wales, 40 miles long and 37 broad; bounded on the N. by Merionethſhire and Denbighſhire, on the NE. and E. by Shropſhire, on the S. by Radnorſhire and Cardiganſhire, and on the W. by Cardiganſhire and part of Merionethſhire. It is divided into ſix hundreds; and contains ſix market towns, 47 pariſhes, about 5660 houſes, and 33,960 inhabitants. It lies in the three ſeveral dioceſes of St Aſaph, Bangor, and Hereford; ſends two members to parliament, one for the county, and one for the town. The air is pleaſant and ſalubrious; but being extremely mountainous, the ſoil is not very fertile, except in the valleys, which afford ſome corn and plenty of paſture; however, the S. SE. and NE. parts, being much more level, are extremely fruitful, eſpecially a pleaſant vale, through which the Severn glides in beautiful meanders.

MONTGON, Charles Alexander, a French writer, who was employed by the Duke of Bourbon, in ſome public buſineſs in Spain. He publiſhed *Memoirs*, in 8 vols 8vo

(1.) * MONTH. *n. ſ.* [*monath*, Saxon.] A ſpace of time either meaſured by the ſun or moon: the lunar month is the time between the change and change, or the time in which the moon comes to the ſame point: the ſolar month is the time in which the ſun paſſes through a ſign of the zodiack: the calendar months, by which we reckon time, are unequally of 30 or 31 days, except February, which is of 28, and in leap year of 29.—

Till the expiration of your *month*,
Sojourn with my ſiſter. *Shak. King Lear.*

—From a *month* old even unto five years old. *Lev.* xxvii. 6.—*Months* are not only lunary, and meaſured by the moon, but alſo ſolary, and terminated by the motion of the ſun, in thirty degrees of the ecliptick. *Brown.*—

As many *months* as I ſuſtain'd her hate,
So many years is ſhe condemn'd by fate
To daily death. *Dryden.*

(2.) MONTH. See ASTRONOMY, and CHRONOLOGY, *Indexes*.

(3.) MONTH, in its proper acceptation, is that ſpace of time which the moon takes up in paſſing from any certain point to the ſame again, which is called a *periodical month;* or it is the ſpace of time between two conjunctions of the moon with the ſun, which is called a *ſynodical month.* That ſpace of time which the ſun takes up in paſſing through one ſign or 12th part of the zodiac, is alſo called (but improperly) a *month.* So that there are two ſorts of months; *lunar*, which are meaſured by the moon; (ſee CHRONOLOGY, *Index;*) and *ſolar*, which are meaſured by the ſun. A ſolar month contains, upon a mean calculation, 30 days, 10 hours, 29 minutes, 5 ſeconds. The Jews, Greeks, and Romans, made uſe of lunar ſynodical months; but, to avoid fractions, they conſiſted alternately of 29 and 30 days. The former, the Romans called *cavi*, and the Greeks χαλα; the latter were termed *pleni* and, πληρεις.

(4.) MONTHS, GRECIAN. The months of the Athenian year conſiſted alternately of 29 and 30 days. The firſt month, according to Meteon's reformation of the kalendar, began with the firſt new moon after the ſummer ſolſtice, and was called *hecatombæon*, anſwering to the latter half of June, and the former half of July. The order of the months, with the number of days of each, were as follows:

1 *Hecatombæon*,	30	7 *Poſidoen*,	30
2 *Metagilnoion*,	29	8 *Gamelion*,	29
3 *Boedromion*,	30	9 *Elaphebolion*,	30
4 *Mæmaƈtrion*,	29	10 *Munichion*,	29
5 *Panepſion*,	30	11 *Thargelion*,	30
6 *Antheſterion*,	29	12 *Scirrophorion*,	29

Each month was divided into three decades of days called δεχημερα. The firſt was called Μηνος αρχομενου or ισαμενου, or the decade of the beginning of the month; the ſecond was Μηνος μεσουντος or the decade of the middle; and the third was Μηνος φθινοντος, παυομενου or ληγοντος, the decade of the expiring month. The firſt day of the firſt decade was termed Νεομηνια, becauſe the firſt month began with the new moon; the ſecond day was δευτερα ισαμενου; the third τριτη ισαμενου, &c. The firſt day of the ſecond decade was πρωτη μεσουντος, the ſecond δευτερα μεσουντος, &c.—the days of this decade were alſo called πρωτη επι δεκα, δευτερα επι δεκα, &c. The firſt day of the third decade was πρωτη επ' εικαδι; the ſecond was δευτερα επ' εικαδι, &c. i.e. the firſt ſecond, &c, after 20, becauſe the laſt decade began on the 20th day. This decade was alſo counted by inverſion thus; φθινοντος δεκατη the 21ſt, φθινοντος εννατη the 22d, φθινοντος ογδοη the 23d, and ſo of the reſt of the laſt day of the month, which was called ενη και νεα, the old and the new, becauſe one part of that day belonged to the old and the other to the new moon; but after the time of Demetrius, the laſt day of the month was called from him Δημητριας; it ſometimes was named τριακας. The Grecian months, thus conſiſting of 29 and 30 days alternately, fell ſhort of the ſolar year 11 days 6 hours. To remedy this defect, the cycle of four years, called τετραετηρις, was invented. In this cycle, after the firſt two years, they added an intercalated month called εμβολιμος, conſiſting of 22 days; and again, after the expiration of 2 years more, they inſerted another month of 23 days, the fourth part of a day having in the ſpace of four years amounted to a whole year. See YEAR.

(5.) MONTHS, HEBREW. The Hebrew months were ranged differently in their ſacred and in their civil year.

Order of the ſacred Year.	Anſwering to our	Order of the civil Year.	Anſwering to our
1 *Niſan*	Mar.	1 *Tiſri*	Sep.
2 *Jair*	Apr.	2 *Marſchovan*	Oƈt.
3 *Sivan*	June	3 *Caſleu*	Nov.
4 *Thammuz*	May	4 *Thebet*	Dec.
5 *Ab*	July	5 *Sebat*	Jan.
6 *Elul*	Aug.	6 *Adar*	Feb.
7 *Tiſri*	Sep.	7 *Niſan*	Mar.
8 *Marſchevan*	Oƈt.	8 *Jair*	Apr.
9 *Caſleu*	Nov.	9 *Sivan*	May
10 *Thebet*	Dec.	10 *Thammuz*	June
11 *Sebat*	Jan.	11 *Ab*	July
12 *Adar*	Feb.	12 *Elul*	Aug.

Theſe months being lunar, cannot exactly anſwer to our ſolar months; but every Jewiſh month muſt be conceived to anſwer to two of ours, and partake of both. As theſe 12 lunar months conſiſted only of 354 days, the Jews in order to bring it nearer to the true year, took care every three years to intercalate a 13th month into the number, which they called *ve-adar*, or the 2d adar. The new moon was always the beginning of the month; and it is ſaid the Jews had people poſted on elevated places, to give notice to the Sanhedrim as ſoon as ſhe made her appearance: After this, proclamation was made by ſound of trumpet, and "the feaſt of the new moon," reſounded among the people. The ancient Hebrew months were of 30 days each, excepting the laſt, which conſiſted of 35; ſo that the year contained 365 days, with an intercalary month at the end of 120 years, which, by abſorbing the odd hours which remained at the concluſion of each year, brought it back nearly to its proper place. This regulation of the year was borrowed from the Egyptians.

(6.) MONTHS, ROMAN. The Roman year under Romulus conſiſted of 10 months only, and began with March, which contained 31 days, then followed April which had 30, May 31, June 30, *Quintilis* 31, *Sextilis* 30, September 30, October 31, November 30, December 30. Theſe 10 months containing no more than 304 days, this diviſion was ſoon found deficient. Numa Pompilius, therefore, took away one day from each of theſe ſix months, April, June, *Sextilis*, September, November, December; and to the ſix days thus obtained he added 51, which was the number that Romulus's year, in his opinion, wanted to make it perfect. Numa had now 57 days to diſpoſe of; he therefore divided them, and conſtituted two other months, January and February; the former conſiſting of 29 and the latter of 28 days. January, which he placed at the winter ſolſtice, he made inſtead of March, to begin the year. Thus Numa's year conſiſted of 355 days; but this being found 11 days 6 hours ſhort of the ſolar year, he made uſe of the intercalation of 90 days at the expiration of 8 years perpetually; which number being made up of the 11 days and a quarter, kept the year pretty well to its place. The beginning of the year in Julius Cæſar's time had anticipated its true place 67 whole days: theſe he intercalated betwixt November and December; ſo that the year conſiſted, for this one time, of 15 months, or

445 days. This reformation was called the *Julian correction*, and this year the *year of confuſion*. At the end of 12 years, by the ignorance of prieſts, who did not underſtand intercalation, 12 days had been intercalated for nine. This was obſerved by Auguſtus, and rectified, by ordering 12 years to paſs without any intercalary days. The order and ſucceſſion of months was the ſame as that of Numa: But January, March, May, *Quintilis*, *Sextilis*, October, and December, had each 31 days; April, June, September 30, and February, in common years, 28; but every 4th year or biſſextile 29. This, with a very little difference, is the account obſerved at preſent. *Quintilis*, in complement to Julius Cæſar, was called *July*, becauſe in this month he was born; and *Sextilis*, in honour of Auguſtus, was called *Auguſt;* both which names are ſtill continued. See Year. Each month by the Romans was divided into *kalends*, *nones*, and *ides*, all of which were reckoned backwards. The *kalends* were the firſt day of the month. The *nones* fell on the 7th, and the *ides* on the 15th, of March, May, July, and October; but in all other months the *nones* were on the 5th, and *ides* on the 13th; as in the following table:

	March May July October	January Auguſt December	April June September November	February
1	*Kalendæ*	*Kalendæ*	*Kalendæ*	*Kalendæ*
2	6	4	4	4
3	5	3	3	3
4	4	*Prid. Non.*	*Prid. Non.*	*Prid. Non.*
5	3	*Nonæ*	*Nonæ*	*Nonæ*
6	*Prid. Non.*	8	8	8
7	*Nonæ*	7	7	7
8	8	6	6	6
9	7	5	5	5
10	6	4	4	4
11	5	3	3	3
12	4	*Prid. Idus*	*Prid. Idus*	*Prid. Idus*
13	3	*Idus*	*Idus*	*Idus*
14	*Prid. Idus*	19	18	16
15	*Idus*	18	17	15
16	17	17	16	14
17	16	16	15	13
18	15	15	14	12
19	14	14	13	11
20	13	13	12	10
21	12	12	11	9
22	11	11	10	8
23	10	10	9	7
24	9	9	8	6
25	8	8	7	5
26	7	7	6	4
27	6	6	5	3
28	5	5	4	*Prid. Kal.*
29	4	4	3	
30	3	3	*Prid. Kal.*	
31	*Prid. Kal.*	*Prid. Kal.*		

N. B. Every leap year, February conſiſting of 29 days, the 24th and 25th of that month were written *ſexto Kal. Mart.;* hence leap year is called *Biſſextilis.*

MONTHERME, a town of France, in the dep. of Ardennes, 9 miles N. of Charleville.

(1.) * MONTHLY. *adj.* [from *month.*] 1. Continuing a month; performed in a month.—I would aſk concerning the *monthly* revolutions of the moon about the earth, or the diurnal ones of the earth upon its own axis, whether theſe have been finite or infinite. *Bentley.* 2. Happening every month.—

The youth of heav'nly birth I view'd,
For whom our *monthly* victims are renew'd.
Dryden.

(2.) * Monthly. *adv.* Once in a month.—If the one may very well *monthly*, the other may as well even daily, be iterated. *Hooker.*—

O ſwear not by the moon, th' inconſtant moon,
That changes *monthly* in her circled orb;
Leſt that thy love prove likewiſe variable. *Shak.*

MONTHOIRON, a town of France, in the dep. of Vienne, 5 miles SE. of Chatelleralt, and 13½ NE. of Poitiers.

* Month's mind. *n.ſ.* Longing deſire.—

You have a *month's mind* to them. *Shak.*
For, if a trumpet ſound, or drum beat,
Who has not a *month's mind* to combat. *Hud.*

MONTHEREUX, a town of France, in the dep. of Voſges, 4½ miles SSW. of Darney, and 7⅞ E. of Marche.

MONTI, Joſeph, profeſſor of botany and natural hiſtory at Bologna; publiſhed ſeveral uſeful works: viz. 1. Prodromus Catalogi ſtirpium Bononienſis: 1719, 4to. 2. Plantarum varii indices: 1724, 4to. 3. Exoticorum ſimplicium.

MONTIA, in botany, a genus of the trigynia order, belonging to the triandria claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. The calyx is diphyllous; the corolla monopetalous and irregular; the capſule unilocular and trivalved.

MONTICELLO, a town of Corſica.

MONTIEL, a town of Spain, in New Caſtile; 18 miles WSW. of Alcaraz. Peter the Cruel, K. of Caſtile, was killed in it by his brother Henry.

MONTIERENDER, a town of France, in the dep. of Upper Marne; 12 miles S. of St Dizier.

(1.) MONTIER, St Jean, a town of France, in the dep. of Cote d'Or, 6 m. SSW. of Montbart.

(2.) Montier sur Saux, a town of France, in the dep. of the Meuſe; 15 m. SSW. of Bar le Duc.

MONTIGNAC, a town of France, in the dep. of Dordogne: 21 miles ESE. of Perigueux.

MONTIGNE, a town of France, in the dep. of Maine and Loire; 12 m. ESE. of Chateauneuf.

(1.) MONTIGNY, a town of France, in the dep. of Cote d'Or; 9 miles NE. of Chatilon.

(2.) Montigny, a town of France, in the dep. of the Nievre; 7½ miles SW. of Moulins.

(3.) Montigny, a town of France, in the dep. of Upper Marne, 12 miles WNW. of Bourbon.

(4.) Montigny sur Canne, a town of France, in the dep. of Nievre, 7½ miles SW. of Moulins.

MONTIL, a town of France, in the dep. of Loir and Cher; 5 miles S. of Blois.

MONTILLA, a town of Spain, in Cordova; containing two pariſhes, 7 convents, and 4000 inhabitants: 18 miles SSE. of Cordova.

MONTILS, a town of France, in the dep. of Lower Charente; 15 miles S. of Saintes.

MONTINIA, in botany, a genus of the tetrandria order, belonging to the diœcia claſs of plants. The perianthium of the male is quadridented ſuperior; and there are 4 petals. The female calyx and corolla are as in the male; the filaments barren; the ſtyle bifid; the capſule oblong and bilocular.

MONTJOSSIEU, Lewis de, a writer of the 16th century, who was author of a curious work on the painting and ſculpture of the ancients, entitled, *Gallus Romæ Hoſpes.* It was publiſhed at Rome, in 1585.

MONTJOUET, a fort of France, in the dep. of Doria, and late duchy of Aoſta, in Piedmont, near the Doria, 10 miles SE. of Aoſta.

MONTJOUY, a fort of Spain, in Catalonia.

MONTJOY, two towns of France, in the dep. of Lot and Garonne: 1. five miles N. of Valence, and 13½ E. of Agen: 2. eight miles SW. of Agen, and 8 SE. of Nerac.

MONTIRAT, a town of France, in the department of the Tarn, 15 miles N. of Alby.

MONTIVILLIERS, a town of France, in the dep. of the Lower Seine, and late prov. of Normandy; 6 miles N. of Havre, and 95 NW. of Paris. Lon. 0. 20. E. Lat. 49. 35. N.

MONTLAUR, a town of France, in the dep. of Upper Garonne; 9 miles SE. of Toulouſe.

Mont-L'Heri, a town of France, in the dep. of the Seine and Oiſe, and late prov. of the iſle of France, 15 miles S. of Paris. Here are the remains of a tower, viſible at a great diſtance. Lon. 2. 0. E. Lat. 48. 38. N.

Mont-Louis, a ſmall but ſtrong town of France, in the dep. of the Eaſtern Pyrenees, and late province of Rouſillon, with a ſtrong citadel; ſeated on an eminence, 40 miles WSW. of Perpignan, and 430 S. of Paris. Lon. 2. 5. E. Lat. 42. 30. N.

Mont-Luet, a town of France, in the dep. of Ain, and ci-devant prov. of Breſſe, and late capital of the territory of Valbonne; ſeated in a fertile pleaſant country on the Seraine, 8 miles from Lyons, and 205 SE. of Paris. Lon. 5. 8. E. Lat. 45. 49. N.

Mont-Luzon, a town of France, in the dep. of Allier, and late prov. of Bourbonnois: ſeated on the Cher, 35 miles SW. of Moulins, and 150 S. of Paris. Lon. 2. 45. E. Lat. 46. 22. N.

MONTMARAULT, a town of France, in the dep. of Allier; 22½ miles SW. of Moulins.

MONTMARTIN, two towns of France, in the dep. of the Channel: viz.

1. Montmartin en Graigne, 4½ miles SE. of Carentan, and 9 N. of St. Loo.

2. Montmartin pres la mer, 4½ miles SW. of Coutances, and 9 NNE. of Granville.

(1.) **MONTMAUR**, a town of France, in the dep. of Marne, 9 miles SW. of Epernay.

(2.) Montmaur, Peter de, profeſſor of Greek at Paris under Lewis XIII, was born in Limouſin. He was a man of conſiderable talents and vivacity; but having, like Swift, indulged his poetical vein in writing anagrams, riddles, &c. his poems are held in contempt by ſome. He died in 1648.

MONTMEDI, or **MONTMEDY**, a ſmall but ſtrong town of France, ſeated on the river Chier, which divides it into the Upper and Lower towns. It was taken from the duchy of Luxemburg, in 1657. It is 22 miles SE. of Sedan, 27 SW. of Luxembourg, and 135 NE. of Paris. Lon. 5. 23. E. Lat. 49. 32. N.

MONTMELIAN, a town of France, in the dep. of Mont Blanc, near the Iſere, with a ſtrong fort of five baſtions, ſeated on a mountain inacceſſible but towards the town. It was taken through treachery, by Francis I. in 1535: it was beſieged in vain by Lewis XIII. in 1630. It was taken by marſhal Catenat in 1692, but reſtored in 1696. It lies 7 miles SSE. of Chamberry, and 22 NE. of Grenoble. Lon. 6. 15. E. Lat. 45. 30. N.

MONTMERLE, a town of France, in the dep. of Ain, 2 miles SE. of Belleville.

(1.) **MONTMIRAIL**, a town of France, in the dep. of Marne, 33 miles WSW. of Chalons.

(2.) Montmirail, a town of France, in the dep. of Drome, 8 miles N. of Romans.

MONTMIREL, a town of France, in the dep. of Aiſne, 9 miles SE. of Chateau Thierry.

MONTMIREY, a town of France, in the dep. of Jura, 6 miles ENE. of Auxonne.

MONTMOREAU, a town of France, in the dep. of Charente; 15 miles S. of Angouleſme.

(1.) **MONTMORENCI**, or (1.) **MONTMORENCY**, Ann de, a peer, marſhal, and conſtable of France, and one of the greateſt generals of the 16th century. He defended, in 1512, the city of Menziers againſt the emperor Charles V. and obliged the count of Naſſau to raiſe the ſiege. In 1513, he was made marſhal of France; and in 1525, following king Francis I. into Italy, he was taken with that prince at the battle of Pavia, which was fought contrary to his advice. The important ſervices he afterwards rendered the ſtate were rewarded by the ſword of conſtable of France, with which he was preſented by the king, Feb. 10, 1538. He afterwards underwent various revolutions of fortune both at court and in the field. At laſt, being wounded at the battle of St Denis, which he gained on the 10th Nov. 1567, he died of his wounds two days after, aged 74. A cordelier offering to prepare him for death, when he was covered with blood and wounds, after the battle of St Denis, he replied in a firm and ſteady voice: "Do you think that a man who has lived near 80 years with honour, has not learnt to die for a quarter of an hour?"

(2.) Montmorency, Charles, 3d ſon of the preceding, was born in 1537; made admiral of France by Henry the Great, and merited it by his bravery. He died in 1612, aged 75.

(3.) Montmorency, Francis Henry de. See Luxembourg, N° 3.

(4.) Montmorency, a town of France, in the dep. of Aube, and diſtrict of Bar, 17 m. N. of Bar.

(5.) Montmorency, a town of France, in the dep. of Seine and Oiſe, remarkable for the tombs of its ancient dukes. It is ſeated on a hill, near a valley, fertile in fruits, eſpecially cherries: 6 miles W. of Goneſſe, and 8 N. of Paris. Lon. 2. 24. E. Lat. 48. 59. N.

Mont-Morillon, a town of France, in the dep. of Vienne, and late prov. of Poitou; on the Gartempe, over which it has a fine bridge; 24 miles SE. of Poitiers.

MONTMORIN, a town of France, in the dep. of the Upper Alps, 9 miles W. of Serres.

* **MONTOIR.** *n.ſ.* [Fr.] In horſemanſhip, a ſtone as high as the ſtirrups, which Italian riding-maſters mount their horſes from, without putting their foot in the ſtirrup. *Dict.*

MONTOIRE, a town of France, in the dep. of the Lower Loire; 12 miles E. of Guerande.

MONTOLIEU, a town of France, in the dep. of Aude, 8 miles NW. of Carcaſſone.

MONTON, a town of France, in the dep. of Puy de Dome; 9 miles NW. of Iſſoire, and 8 SSE. of Clermont.

MONTONA, a borough and diſtrict of Iſtria. The town lies 16 miles ESE of Umago. The diſtrict extends from the Quieto de Piſino, and contains ſeveral enormous foreſts.

MONTONE, a river of Naples.

(1.) **MONTORIO**, a town of Naples, in Abruzzo Ultra, 6 miles SW. of Teramo.

(2, 3.) Montorio, a town and diſtrict of Italy, in the department of the Mincio, diſtrict and late province of Verona. The latter lies between the Baltena and the Mezzano, and contains 10 pariſhes.

MONTORO, a town of Spain in Cordova.

MONTOYTO, a town of Portugal, in Alentejo, 14 miles E. of Evora.

MONTPELIER. See Montpellier.

MONTPELLAS, a town of France, in the dep. of Mont Blanc, 7 miles ENE. of Chambery.

MONTPELLIER, a city of France, capital of the dep. of Herault, and of the late prov. of Languedoc. It is rekoned one of the handſomeſt cities in France. It hath a citadel, an univerſity, and academy of ſciences, and a botanic garden, the firſt eſtabliſhed in Europe. It has been long famous for a climate uncommonly ſalubrious. The air may be ſalutary in catarrhous conſumptions from its dryneſs and elaſticity; but it is too ſharp in caſes of pulmonary impoſthumes. The climate according to ſome late travellers, is ſo much altered for the worſe, that the inhabitants ſcarce know it to be the ſame. It has been known to rain almoſt 3 months without intermiſſion; and at intervals ſuch thick ſtinking fogs, as nothing but the banks of Newfoundland could equal; and ſeveral times, for ſeveral days, the ſky is ſo heavily loaded, that neither ſun, moon, nor ſtar, can be ſeen. In ſummer, it is ſo intolerably hot, that till the evening there is no ſtirring out. Its ſituation, though on an eminence, is not healthy; as between it and the Mediterranean (about 9 miles diſtant) it is one continued marſh, exhaling noxious vapours, which, when the ſea breeze ſets in, blow directly on the town and the country adjacent; of the ſad effects of which, its unhealthy inhabitants, with their yellow meagre looks, are the moſt convincing proofs. The people in trade are reputed by the French themſelves to be great extortioners. This city ſtands upon a riſing ground fronting the Mediterranean, which is about 9 miles to the S. on the other ſide is an agreeable plain, extending as far as to the Cevennes. It is well built, yet the ſtreets are narrow and the houſes dark. The population is eſtimated at 78,000; the citizens are ſociable, gay, and good tempered; and they trade very largely in wine, cordials, oil, verdigreaſe, and ſalt petre. They have ſeveral manufactures, in ſilk and woollen goods. Many of them are Proteſtants. The markets are well ſupplied with fiſh, poultry, butcher's meat, and game, at reaſonable rates. The wine is ſtrong and harſh: Burgandy is dear, as well as the ſweet wine of Frontignan. Liquors of various ſorts are compounded and diſtilled. The environs are extremely pleaſant, having on one ſide La Place de Peyrou, which forms a fine terrace. Thence, in a clear day, may be ſeen to the E. the Alps, which form the frontiers of Italy; to the SW. the Pyrenean mountains, which form thoſe of Spain, each 50 leagues diſtant; and to the S. a moſt extenſive view of the Mediterranean. Not far from thence is a noble aqueduct, built like two bridges one above the other; by which water is brought from a mountain, 9 miles diſtant, into two baſons in a ſmall elegant temple at the W. end of the place; and the ci-devant royal garden, where public lectures are held on botany. On the other ſide of the town is the eſplanade, a beautiful walk, bordered on each ſide by olive trees, whence there is a pleaſing proſpect of the ſea and the country adjacent; near which is the citadel, a place of no ſtrength, though well walled in. It lies 27 miles SW. of Niſmes; 47 ENE. of Narbonne; and 180 W. by S. of Paris. Lon. 4. 20. E. Lat. 45. 58. N.

MONTPENSIER, a town of France, in the dep. of Puy de Dome, and late prov. of Auvergne, on a hill 20 miles NE. of Clermont, and 210 SE. of Paris. Lon. 3. 14. E. Lat. 46. 4. N.

MONTPEYROUX, a town of France, in the dep. of Herault, 7½ miles ESE. of Lodeve.

MONTREZAT, 3 towns of France; 1. in the dep. of Ardeche 17 miles W. of Privas: 2. In that of Lot, 12 miles S. of Cahors: and, 3. in that of Lot and Garonne, 9 miles ESE. of Tonneins.

MONTPEZAU, a town of France, in the dep. of Gers, 22 miles SE. of Auch.

MONTPINCON, a town of France, in the dep. of the Channel; 6 miles E. of Coutances.

MONTPONT, two towns of France; 1. in the dep. of Saone and Loire, 7 miles SW. of Louhans: 2. in that of Dordogne, 17 miles NW. of Bergerac.

MONTPREVEIRE, a town of Switzerland, in the canton of Berne; 5 miles NE. of Lauſanne.

MONTQUELAI, a town of Perſia, in Farſiſtan, on the N. coaſt of the Perſian Gulf.

MONTQUHITTER, [*Gael. i. e.* a place for enſnaring deer.] a pariſh of Scotland in Aberdeenſh. and diſtrict of Buchan; bounded on 3 ſides by the ſea, and extending from SE. to NW. 10½ miles; from S. to N. 9; and from E. to W. 6. The ſurface is partly hilly, partly moſſy, and not above a 10th part admits of tillage; yet the air is ſalubrious, and a conſiderable part of the ſoil very fertile having been lately much improved. Oats, barley, peaſe, and potatoes, with ſome flax, are the only crops. The population, in 1791, was 1470; increaſe 473 ſince 1755. Of theſe there were 404, in *Cumineſtown*, a village lately erected by Mr Cumine of Auchry. The number of ſheep was above 1300;

of horſes 290; and of black cattle 1350. This pariſh is famous for 3 bloody battles, fought at *Lendrum*, in the 11th century, for 3 days, between the uſurper Donald Bane, lord of the Iſles, brother to K. Malcom III. and the royal forces under the potent Thane of Buchan, the head of the *Canmore* party, who proved victorious in all the three engagements, and compelled the uſurper to fly. Three cairns or tumuli, raiſed over the bodies of the ſlain, ſtill mark the bloody ſcenes.

(1.) MONTREAL, an iſland of N. America, in the St Laurence, about 20 miles long, and 9 over in the broadeſt parts. It belonged to the French; but was taken by Gen. Amherſt and Murray on the 8th Sept. 1760. By the capitulation, all the French forces were ſent to Old France; and thus all CANADA became ſubject to the crown of Great Britain; which was confirmed by the peace of 1763. The ſoil is exceedingly rich, producing all kinds of European fruits and vegetables in great abundance. The S. ſide is moſt populous, beſt cultivated, and adorned with villas. Since this place has been in the poſſeſſion of Britain, it has ſuffered much by fires, the houſes being moſtly built of wood.

(2.) MONTREAL, the capital of the above iſland, formerly called VILLE MARIE, is the 2d place in Canada for extent, buildings, and ſtrength; and, beſides the advantage of a better climate for delightfulneſs of ſituation, is much preferable to Quebec. It ſtands on the ſide of a hill ſloping to the S. with many agreeable villas upon it, which, with the iſland of St Helen, and the river (which is about 2 miles broad), form a moſt charming landſcape. The city is not very broad from N. to S. but covers a great length of ground from E. to W. and is nearly as populous as Quebec. The ſtreets are regular, forming an oblong ſquare; the houſes well built, and the public edifices far exceed thoſe of Quebec in beauty and commodiouſneſs; the reſidence of the knights hoſpitallers is extremely magnificent.—There are ſeveral gardens within the walls, particularly thoſe of the Governor, the Siſters of the Congregation, the Nunnery Hoſpital, the Recollets, Jeſuits Seminary, &c. There are alſo many other gardens and plantations without the gates. The 3 churches and religious houſes are of the utmoſt neatneſs and ſimplicity. The city has 7 gates, but its fortifications are inconſiderable, being encompaſſed by a ſlight wall of maſonry, ſufficient only to prevent a ſurpriſe from the numerous tribes of Indians with whom they are ſurrounded, and who uſed to reſort in vaſt bodies to the annual fair held here, from June till the end of Auguſt. Though the French garriſon in 1760 conſiſted of 8 battalions of regular troops, a numerous militia and a great body of ſavages, Meſſrs Vandreuil and Levis ſubmitted without firing a gun. There are no guns on the wall; only a dry ditch ſurrounds it, about 7 feet deep, with a regular glacis. On the inſide of the town is a cavalier on an artificial eminence, with a parapet of logs, and 6 or 8 guns, called *the citadel*. The number of inhabitants is about 6000, who are extremely well dreſſed. They are well ſupplied with all kinds of river fiſh, ſome of which are peculiar to this country. They have likewiſe plenty of black cattle, horſes, hogs, and poultry. The neighbouring ſhores ſupply them with a great variety of game in the different ſeaſons; and the iſland abounds with ſoft ſprings, which form many pleaſant rivulets. The people drive a conſiderable trade in furs, &c. and veſſels of 200 tons can come up to the city. It ſtands 120 miles SW. of Quebec, and 110 N. of Albany. Lon. 71. 20. W. Lat. 45. 55. N.

(3.) MONTREAL, or *Mount Royal*, a fortreſs of Germany, in the late electorate of Triers; ſeated on the Moſelle, 22 miles NE. of Triers: now included in the French empire, and dep. of Rhine and Moſelle. Lon. 7. 6. E. Lat. 49. 59. N.

(4.) MONTREAL, a town of Sicily, in the valley of Mazara, with an archbiſhop's ſee; ſeated on a rivulet, 5 miles W. of Palermo, and 50 NE. of Mazara. Lon. 13. 31. E. Lat. 38. 14. N.

(5.) MONTREAL, a town of Spain, in Arragon, with a caſtle, ſeated on the Xiloca,, 25 miles N. W. of Tervil, and 40 SE. of Calataud. Lon 1. 2. W. Lat. 41. 9. N.

MONTREDON, a town of France, in the dep. of Ande; 3 miles W. of Narbonne.

MONTREGEAU, a town of France, in the dep. of Upper Garrone; 6 miles E. of Gaudens.

MONTRESOR, a town of France, in the dep. of Indre and Loire, 9 miles E. of Loches.

(1—3.) MONTREUIL, 3 towns of France; viz. 1. in the dep. of Aude, 9 miles SE. of Troyes: 2. in that of Eure, 10½ miles S. of Bernay: 3. in that of Paris, 3 miles E. of Paris:—

(4.) MONTREUIL BELLARY, in the dep. of Maine and Loire, 10 miles S. of Saumur, 12 NW. of Loudun, and 155 from Paris. Lon. 0. 9. W. Lat 47. 6. N.

(5.) MONTREUIL BONNIN, in the department of the Vienne, 9 miles SW. of Poitiers.

(6.) MONTREUIL SUR MER, in the dep. of the Straits of Calais, 40 miles S. of Calais and 117 N. of Paris. It is ſeated on a hill, near the Canche; is fortified, and contains about 5000 citizens. Lon. 1. 52. E. Lat. 50. 27. N.

MONTREVAULT, a town of France, in the dep. of Mayne, and Loire; 6 miles S. of Old St Florent.

MONTREVILLE, a town of France, in the dep. of, the Nievre, 9 miles NW. of Chateau-Chinon.

MONT-RICHARD, a town of France, in the dep. of Loire and Cher, on the Cher, 12 miles SE. of Amboiſe, and 112 SW. of Paris. Lon. 1. 22. E. Lat 47. 22. N.

MONTRIGAUD, a town of France, in the dep. of Drome; 12 miles NNE. of Romans, and 15 of Tain.

(1.) MONTROSE, a pariſh of Scotland in Angus-ſhire anciently called *Celurca*. (See Boece, Johnſton, &c. The rev. Mr Molleſon ſays, " the moſt probable derivation of its modern appellation is from the Gaelic, in which *Moinroſs* ſignifies *the fenny promontory*, and it is called by the vulgar *Monroſs* to this day. Buchanan and others have given it a derivation more flattering than juſt, when they aſſert, that it properly means the *Mount of Roſes*, *Mons Roſarum*. Yet in alluſion to this, the town's ſeal is impreſſed with *roſes*; and the motto is " *Mare dicat, roſa decorat*, the ſea enriches, the roſe adorns."—It is 3 miles long from N. to S. and 2½ broad. It is watered by the N. and S. Eſks, over which there are two elegant bridges. See Esk, Nº 7 and 8; and Inchbrayock. The ſurface is flat, yet it affords a variegated and extenſive proſpect, W. to Brechin and N. to the Grampians. The baſin, formed by the eſtuary of the S. Eſk, is a beautiful piece of water nearly circular; and at high water, about 3 miles in diameter, on the W. ſide of the town, though nearly dry at low water. An attempt was made to drain it in the 17th century; but when the dike was nearly completed a ſtorm aroſe and levelled the whole works. The ſoil is fertile, well cultivated, and of late much improved. Of 3080 acres, 1000 were under wheat, oats, barley, &c. in 1792; 1400 under graſſes and paſture; and 680 under wood, marſhes, and heath. The total population, in 1790, was 6194; increaſe 2044 ſince 1755: the number of horſes 130; of ſheep 100, and black cattle 500.

(2.) **Montrose**, a handſome town in the above pariſh, ſituated at the mouth of the Eſk, on the German Ocean, 48 miles NE. of Edinburgh, but 70 miles diſtant by road. The houſes are neat, built of ſtone, and many of them in the modern taſte. The moſt remarkable public buildings are, the old and new town-houſes, the church, lately rebuilt upon a new and elegant plan, the lunatic hoſpital, a very uſeful inſtitution conducted upon the moſt humane principles, the public library, and an elegant epiſcopal chapel. Montroſe ſtands between two rivers, the S. and N. Eſks, over which there have been lately built two very handſome bridges, at a great expenſe. The ſalmon fiſheries on theſe rivers are very valuable, and form a good branch of commerce. The harbour is a fine ſemicircular baſin defended by a handſome ſtone pier. A great number of trading veſſels belong to this port. Montroſe is a royal borough, and unites with Aberdeen, Bervie, Brechin and Arbroath, in electing a repreſentative in the imperial parliament. The town council conſiſts of a provoſt, 3 bailies, dean of guild, treaſurer, and 13 councillors. Its total population, in 1790, was 5194 ſouls. It lies 47 miles NE. of Perth, and 23 of Dundee. Lon. 0. 45. E. of Edinburgh, 2. 10. W. of London. Lat. 56. 34. N.

(3.) **Montrose**, Marquis of. See Graham, Nº 2; and England, § 47, 48.

MONTROSIERS, a town of France, in the department of Aveiron, 19 miles NE. of Rhodez.

* **MONTROSS.** *n. ſ.* An under gunner, or aſſiſtant to a gunner, engineer, or fire-maſter. *Dict.*

MONTROUGE, a town of France, in the dep. of Paris, 1½ miles S. of Paris.

MONTS, a town of France, in the dep. of Vienne, 4½ miles SSE. of Loudun.

Mont St Bernard. See Bernard, St, Nº 7.

Mont-Saloy, a town of France, in the dep. of the Cantal, 15 miles S. of Arillac.

Mont-Saugeon, a town of France, in the dep. of Upper Marne, 12 miles S. of Langres.

Mont-Selice. See Monsellice.

Mont-Senny, a mountain of Catalonia.

(1.) **MONTSERRAT**, a mountain of Spain, in Catalonia, one of the moſt ſingular in the world for ſituation, ſhape, and conſtitution. It ſtands ſingle, towering over a hilly country like a pile of grotto work or Gothic ſpires; and its height ſo great, that to a beholder on the top the neighbouring mountains appear to be ſunk to a level with the plain. It is compoſed of ſteep rocks, which at a diſtance ſeem indented; whence its name, *Montſerrat*, from the Latin, *ſerra a ſaw*. Montſerrat is famous for the adoration paid to an image of the Virgin, which, according to tradition, was found in a cave in this mountain by ſome ſhepherds in 880. Over this image, Guthred earl of Barcelona cauſed a monaſtery and chapel to be erected; but, after remaining in this receptacle upwards of 700 years, Philip II. and Philip III. built a magnificent church for its reception. Innumerable miracles are aſcribed to this image. The monaſtery is ſituated in a corner of the mountain; it ſeems as if vaſt torrents of water, or ſome violent convulſion of nature, had ſplit the eaſtern face of Montſerrat, and formed in the cleft a ſufficient platform to build the monaſtery upon. The river Llobregat roars at the bottom, and perpendicular walls of rock, of prodigious height, riſe from the water edge near half way up the mountain. Upon theſe maſſes of white ſtone reſts the ſmall piece of level ground which the monks inhabit. Cloſe behind the abbey, and in ſome parts impending over it, huge cliffs ſhoot up in a ſemicircle to a ſtupendous elevation: their ſummits are ſplit into ſharp cones, pillars, pipes, and other odd ſhapes, blanched and bare; but the interſtices are filled up with foreſts of evergreen and deciduous trees and plants: 15 hermitages are placed among the woods; ſome of them on the very pinnacles of the rocks, and in cavities hewn out of the loftieſt of theſe pyramids. This mountain is 25 miles NW. of Barcelona. Lon. 2. 26. E. Lat. 41. 40. N.

(2.) **Montserrat**, one of the Caribbee iſles belonging to Great Britain. It is a very ſmall, but pleaſant iſland, ſo called by Columbus from its reſemblance to the above mountain. It has Antingua on the NE. St Chriſtopher's and Nevis on the NW. and Guadaloupe lying SSE. at the diſtance of about 9 leagues. In its figure it is nearly round, about 9 miles in extent every way, 27 in circumference, and ſuppoſed to contain about 50,000 acres. The climate is warm, but leſs ſo than in Antigua, and is eſteemed very healthy. The ſurface is mountainous, but interſperſed with pleaſant, rich, and fertile valleys: the hills are covered with cedars and other fine trees. Here are all the animals, vegetables, and fruits, that are to be found in the other iſlands. The inhabitants raiſed formerly a conſiderable quantity of indigo, which they cut four times a-year. The preſent product is cotton, rum, and ſugar. There is no good harbour, but three tolerable roads, at Plymouth, Old Harbour, and Ker's Bay, where they ſhip the produce of the iſland. Public affairs are adminiſtered by a lieutenant-governor, council, and aſſembly, compoſed of 8 members, two from each of the four diſtricts. The effects of induſtry have been no where more conſpicuous than in this iſland, eſpecially of late years, ſince the art of planting has been reduced to a regular ſyſtem, and almoſt all the defects of ſoil ſo thoroughly removed by proper management and manure, that, except from the failure of ſeaſons, or the want of hands, there is ſeldom any fear of a crop. There are a few ſhips employed in trading to this iſland from London and from Briſtol. The number of inhabitants, according to the moſt probable accounts, is between 1200 and 1500 whites, and from 10,000 to 12,000 negroes. This iſland lies 30 miles SW. of Antigua. Lon. 62. 34. W. Lat. 16. 54. N.

MONTSOREAU, a town of France, in the dep. of Maine and Loire, 6 miles SE. of Saumur.

MONTSURS, a town of France, in the dep. of Mayenne, 10 miles S. of Mayenne.

Mont Terrible, a department of France, formed out of the ci-devant principality of Monaco, and county of Nice.

Mont Tonnere, a department of France, one of the *four*, into which the countries on the left or W. bank of the Rhine, which in 1796 had been annexed to France, and divided into ſix departments, were finally divided in 1798. By the firſt diviſion it contained the country from Oppenheim to Queich, Abzey, Grunſtadt, Durlſheim, Lautern, Meſſenheim, Neuſtadt, Worms, &c. Part of the late electorates of Treves and Deuxponts are now added to it. *Worms* is the capital.

(1, 2.) MONTVILLE, two towns of France; 1. in the dep. of Lower Seine, 7½ miles N. of Rouen; 2. in that of Mayenne, 9 miles ENE. of Laval.

(3.) Montville, a townſhip of Connecticut in New London county, containing 2053 *citizens* in 1795.

MONTWILISKT, a town of Samogitia.

MONTZBURG, a town of Saxony, in Meiſſen.

MONTZEN, a town of France, in the dep. of Ourte, and late duchy of Limburg.

(1.) * MONUMENT. *n.ſ.* [*monument*, Fr. *monumentum*, Latin.] 1. Any thing by which the memory of perſons or things is preſerved; a memorial.—In his time there remained the *monument* of his tomb in the mountain Jaſius. *Raleigh.*—He is become a notable *monument* of unproſperous diſloyalty. *King Charles.*—

So many grateful altars I would rear
Of graſſy turf; and pile up every ſtone
Of luſtre from the brook in memory,
Or *monument* to ages. *Milton.*
Of ancient Britiſh art
A pleaſing *monument*. *Phillips.*

—Collect the beſt *monuments* of our friends, their own images in their writings. *Pope.* 2. A tomb; a cenotaph; ſomething erected in memory of the dead.—

On your family's old *monument*
Hang mournful epitaphs. *Shak.*
The flowers which in the circling valley grow,
Shall on his *monument* their odours throw. *Sandys.*
Two youthful knights they found beneath a load oppreſt
Of ſlaughter'd foes, whom firſt to death they ſent,
The trophies of their ſtrength, a bloody *monument*. *Dryden.*
With thee on Raphael's *monument* I mourn. *Pope.*

(2.) Monument. See Mausoleum, Pyramid, &c.

* MONUMENTAL. *adj.* [from *monument*.] 1. Memorial; preſerving memory.—

Me, goddeſs, bring
To arched walks of twilight groves,
And ſhadows brown that Sylvan loves,
Of pine or *monumental* oak. *Milton.*

—The deſtruction of the earth was the moſt *monumental* proof that could have been given to all the ſucceeding ages of mankind. *Woodward.*—

The poliſh'd pillar different ſculptures grace,
A work outlaſting *monumental* braſs. *Pope.*

2. Raiſed in honour of the dead; belonging to a tomb.—

To have done, is to hang quite out of faſhion,
Like ruſty mail in *monumental* mockery. *Shak.*
I'll not ſcar that whiter ſkin of her than ſnow,
And ſmooth as *monumental* alabaſter. *Shak.*
Softly may he be poſſeſt
Of his *monumental* reſt. *Craſhaw.*

MONUSCAT, a town of Turkey, in Curdiſtan.

MONYMUSK, [Gael. from *monaugh*, hilly, and *monſick*, marſhy,] a pariſh of Aberdeenſhire, ſo named from the two-fold nature of the ground it conſiſts of, about 7 miles long, from 4 to 5 broad, and 18 from Aberdeen. The air and ſoil are good, huſbandry improved, wheat, rye, oats, barley and peaſe produced, and quantities of grain exported. It has a rich iron mine, and the Don runs through it. The population, in 1791, was 1127; increaſe 122 ſince 1755; number of horſes 182; ſheep 1482; and black cattle 1029. There are ſome extenſive woods, which afford ſhelter and paſture to great numbers of deer and roes.

(1.) MONZA, a diſtrict of Italy, in the department of Olona; containing 78,202 citizens in May 1801.

(2.) Monza, a town of Italy, in the above diſtrict, and late duchy of Milan on the Lambro, 8 miles NNE. of Milan. In this town is preſerved the ancient iron crown, with which the emperors and kings of Italy were crowned. It is called the *iron crown*, though made of *gold*, and enriched with jewels, from an iron ring on the inſide of it. It now adorns the brows of the Jacobin, Republican Conſular, Imperial Napoleon Buonaparte. Lon. 9. 20. E. Lat. 45 33. N.

MONZAMBANE, a town of Italy, in the dep. of the Mincio and diſtrict of Verona, 14 miles NNW. of Mantua.

MONZEVILLO, a town of France, in the dep. of the Meuſe, 8 miles NE. of Clermont.

MONZIE, a pariſh of Perthſhire, on the S. ſide of the Grampians, ſo named from the Gaelic *Monieu*, Deer-hill, *monimi*, hill-foot, or *moeghe*, a good plain; all of which etymoligies are applicable to it. It is 12 miles long from N. to S. and 7 broad from E. to W. The ſoil is light, dry, and fertile; the climate is various, but healthful; one man died lately aged 100. The Amon interſects it for 12 miles. Oats, peaſe, barley, potatoes, and flax, are the chief crops. The population, in 1792, was 1136; decreaſe 56, ſince 1755. The number of ſheep about 10,000. The pariſh abounds with natural curioſities, water-falls, caves, and other romantic ſcenery; particularly in Glenalmon, where there is a remarkable echo. There are ſeveral Roman and Caledonian antiquities. Near an old Roman camp ſtands a village called *Fingal's houſe*, 2 miles from Dunmore hill, on the top of which are the relics of a ſtrong fort, to which FINGAL retreated after his houſe was burnt by Gara. His father and ſon lie buried here. The rev. Mr Erſkine ſays, " We are *certain* that the famous Caledonian bard, OSSIAN, lies here. His tomb is well known, and often viſited. It is a coffin of 4 ſtones ſet on an edge, about 2 feet long, and 2 feet deep, 1½ feet broad, and over it is laid a great ſtone, 8 feet high and 21 feet in circumference." (Sir *J. Sinclair's Stat. Acc.* XV. 258.) Yet Malcolm Laing, Eſq. advocate, calls in queſtion the exiſtence of theſe ancient Scottiſh heroes. But the preſent age is not the *Age of Reaſon*, as T. Paine ſtyled it, in preference to other ages; but the *Age of Infidelity* in almoſt every thing, beyond all former ages.

MONZINGEN, a town of Germany, in the late county of Sponheim, now included in France, and dep. of Mont Tonnere; 12 miles W. of Creutznach, and 42 E. of Treves.

MONZKGUTH, a diſtrict of Upper Saxony, in a peninſula of the iſle of Rugen, on the SE.

MONZON. See MONÇON.

MOO, a town of Sweden, in W. Gothland.

(1.) * **MOOD**. *n. ſ.* [*mode*, Fr. *modus*, Latin.] 1. The form of an argument.—*Mood* is the regular determination of propoſitions according to their quantity and quality, *i. e.* their univerſal or particular affirmation or negation. *Watts.*—Ariſtotle reduced our looſe reaſonings to certain rules, and made them conclude in *mode* and figure. *Baker.* 2. Style of muſick.—

They move
In perfect phalanx, to the Dorian *mood*
Of flutes and ſoft recorders. *Milton.*
Their ſound ſeems a tune
Harſh, and of diſſonant *mood* from his complaint. *Milton.*

3. The change the verb undergoes in ſome languages, as the Greek, Latin, and French, to ſignify various intentions of the mind, is called *mood*. *Clarke.* 4. [from *mod*, Gothick; *mod*, Saxon; *moed*, Dutch; and generally in all Teutonick dialects.] Temper of mind; ſtate of mind as affected by any paſſion; diſpoſition.—

The trembling ghoſts, with ſad amazed *mood*,
Chattering their iron teeth. *Fairy Queen.*
The kingly beaſt upon her gazing ſtood,
With pity calm'd, down fell his angry *mood*. *Fairy Queen.*
Eyes unuſed to the melting *mood*. *Shak.*
Clorinda changed to ruth her warlike *mood*. *Fairfax.*

—Solyman, in a melancholy *mood*, walked up and down in his tent a great part of the night. *Knolles.*—

She was in the fitteſt *mood*
For cutting corns, or letting blood. *Hudib.*
Theſe two kids t' appeaſe his angry *mood*
I bear, of which the furies give him good. *Dryden.*
He now, profuſe of tears,
In ſuppliant *mood* fell proſtrate at our feet. *Addiſon.*

5. Anger; rage; heat of mind. *Mod*, in Gothick, ſignifies habitual temper.—In their *mood* they caſt forth ſomewhat wherewith, under pain of greater diſpleaſure, we muſt reſt contented. *Hooker.*

(2.) MOOD. See MODE.

(3.) MOOD, or MODE, in grammar, is the different manner of conjugating verbs. See that article under ENGLISH LANGUAGE.

(4.) MOODS of SYLLOGISM. See LOGIC.

* **MOODY**. *adj.* [from *mood*.] 1. Angry; out of humour.—

How now, *moody*?
What is't thou canſt demand? *Shak.*
Being *moody*, give him line and ſcope,
Till that his paſſions, like a whale on ground,
Confound themſelves with working. *Shak.*
Every peeviſh, *moody* malecontent,
Shall ſet the ſenſeleſs rabble in an uproar. *Rowe.*

2. Mental; intellectual: *mod*, in Saxon, ſignifies the mind.—

Give me ſome muſick; muſick, *moody* food
Of us that trade in love. *Shak.*

MOOLILLY, a town of Indoſtan, in Myſore.

(1.) * **MOON**. *n. ſ.* [*μηνη*; *mena*, Gothick; *mena*, Saxon; *mona*, Iſlandick; *maane*, Daniſh; *mane*, German; *maen*, Dutch.] 1. The changing luminary of the night, called by poets Cynthia or Phœbe.—

The *moon* ſhines bright; 'twas ſuch a night as this,
When the ſweet wind did gently kiſs the trees,
And they did make no noiſe. *Shak.*

—Diana hath her name from moiſten, which is the property of the *moon*, being by nature cold and moiſt. *Peacham.*—

Beneath th' eternal fountain of all waves,
Where their vaſt court the mother waters keep,
And, undiſturb'd by *moons*, in ſilence ſleep. *Cowley.*

2. A month. *Ainſworth.* 3. [In fortification.] It is uſed in compoſition to denote a figure reſembling a creſcent: as, a half *moon*.

(2.) MOON, LUNA, ☽, in aſtronomy, one of the heavenly bodies uſually ranked among the planets; but with more propriety accounted a ſatellite, or ſecondary planet. As all the other planets move primarily round the ſun, ſo does the moon round the earth: her orbit is an ellipſis, in which ſhe is retained by the force of gravity; performing her revolution round the earth, from change to change, in 29 days, 12 hours, and 44 minutes, and round the ſun with it every year: ſhe goes round her orbit in 27 days, 7 hours, 43 minutes, moving about 2290 miles every hour; and turns round her axis exactly in the time that ſhe goes round the earth, which is the reaſon of her keeping always the ſame ſide towards us; and that her day and night taken together are as long as our lunar month. See ASTRONOMY, *Index*.

(3.) MOON, ANCIENT OPINIONS RESPECTING THE. Among the ancients, the moon was an object of prime regard. By the Hebrews ſhe was more regarded than the ſun, and they were more inclined to worſhip her as a deity. The new moons, or firſt days of every month, were kept as feſtivals among them, which were celebrated with ſound of trumpets, entertainments, and ſacrifice.

crifice. (See Numb. xxviii. 11. x. 16. 1 Sam. xx. 5—18.) People were not obliged on theſe days to reſt. The feaſts of new moons were the miniature repreſentation of the feaſt of trumpets, which was held on the firſt of the month Tiſri, which was the beginning of the civil year. The Jews, not being acquainted with the phyſical cauſes of eclipſes, looked upon them, whether of ſun or moon, as ſigns of the divine diſpleaſure. The Grecians looked upon the moon as favourable to marriage; and the full moons, or the times of conjunction of the ſun and moon, were held the moſt lucky ſeaſons for celebrating marriages; becauſe they imagined the moon to have great influence over generation. The full moon was held favourable for any undertakings by the Spartans; and no motives could induce them to enter upon an expedition, march an army, or attack an enemy, till the full of the moon. The moon was ſuppoſed both by Greeks and Romans to preſide over child-birth. The patricians at Rome wore a creſcent on their ſhoes, to diſtinguiſh them from the other orders of men. This creſcent was called *Lunula*. Some ſay it was of ivory, others that it was worked upon the ſhoe, and others that it was only a particular kind of fibula or buckle.

(4.) **Moon, distance, diameter, extent, density, appearances, &c. of the.** The mean diſtance of the moon from the earth is 60½ ſemi-diameters of the earth; which is equivalent to 240,000 miles. The mean eccentricity of her orbit is $\frac{55}{1000}$ of her mean diſtance, or in miles 13,000, which makes a conſiderable variation in that mean diſtance. Her diameter to that of the earth as 100 to 365, as 11 to 40·15, or 2180 miles: its mean apparent diameter is 31 minutes 16½, and that of the ſun 32 minutes 12 ſeconds. Its mean diameter, as ſeen from the ſun, is 6 ſeconds. The moon's ſurface contains 14,898,750 ſquare miles, and its ſolidity 5,408,246,000 cubical ones. The denſity of the moon's body is to that of the earth as 48,911 to 39,214; to that of the ſun, as 48,911 to 10,000; its quantity of matter to that of the earth, nearly as 1 to 39·15; the force of the gravity on its ſurface is to that on the ſurface of the earth as 139·2 to 407·8; and the moon's bulk to that of the earth as $\frac{1}{50}$ to 1. The moon has ſcarce any difference of ſeaſons, becauſe her axis is almoſt perpendicular to the ecliptic. The different appearances of the moon are very numerous; ſometimes ſhe is increaſing, then waning; ſometimes horned, then ſemicircular; ſometimes gibbous, then full and round. Sometimes, again, ſhe illumines us the whole night; ſometimes only a part of it; ſometimes ſhe is found in the ſouthern hemiſphere, ſometimes in the northern; all which variations having been firſt obſerved by Endymion, an ancient Grecian who watched her motions, ſhe was fabled to have fallen in love with him. The ſource of moſt of theſe appearances is, that the moon is a dark, opaque, and ſpherical body, and only ſhines with the light ſhe receives from the ſun; whence only that half turned towards him, at any inſtant, can be illuminated, the oppoſite half remaining in its native darkneſs. The face of the moon viſible on our earth, is that part of her body turned towards the earth; whence, according to the various poſitions of the moon, with regard to the ſun and earth, we obſerve different degrees of illumination; ſometimes a large and ſometimes a leſs portion of the enlightened force being viſible. But for a particular account of theſe, ſee Astronomy, *Index*.

(5.) **Moon, Harvest.** It is remarkable that the moon, during the week in which ſhe is full in harveſt, riſes ſooner after ſun-ſetting than ſhe does in any other full moon week in the year. By doing ſo, ſhe affords an immediate ſupply of light after ſunſet, which is very beneficial to the farmers for reaping and gathering in the fruits of the earth; and therefore they diſtinguiſh this full moon from all the others in the year, by calling it the *harveſt moon*. For an account of which, ſee Astronomy, N° 370, 371.

(6.) **Moon, influence of the, on the human body, the weather, &c.** The vulgar doctrine concerning the influence of the moon on the changes of *weather* is very ancient, and has gained credit among the learned without ſufficient examination; but it ſeems now to be pretty generally exploded by philoſophers, as equally deſtitute of all foundation in phyſical theory, and unſupported by any plauſible analogy. The common opinion is, that the lunar influence is exerted at the ſyzygies and quadratures, and for three days before and after each of thoſe epochs. There are 24 days, therefore, in each ſynodic month, over which the moon, at this rate, is ſuppoſed to preſide; and as the whole conſiſts but of 29 days 12¾ hours, only 5½ days are exempt from her pretended dominion. Hence, though the changes of the weather ſhould happen to have no connection whatever with the moon's aſpects, and they ſhould be diſtributed in an equal proportion through the whole ſynodic month, yet any one who ſhall predict, that a change ſhall happen on ſome one of the 24 days aſſigned, rather than in any of the remaining 5½, will always have the chances 24 to 5½ in his favour. Men may, therefore, eaſily deceive themſelves, eſpecially in ſo unſettled a climate as ours. Moreover, the writers who treat of the ſigns of the weather, derive their prognoſtics from circumſtances which neither argue any real influence of the moon as a cauſe, nor any belief of ſuch an influence, but are merely indications of the ſtate of the air at the time of obſervation: ſuch are, the ſhape of the horns, the degree and colour of the light, and the number and quality of the luminous circles which ſometimes ſurround the moon, and the circumſtances attending their diſappearance. (See the Διοσημεια of Aratus, and the *Scholia* of Theon.) The vulgar ſoon began to conſider theſe things as cauſes, which had been propoſed to them only as ſigns: and the notion of the moon's influence on all terreſtrial things was confirmed by her manifeſt effect upon the ocean. See *Phil. Tranſ.* vol. lxv. part 2. p. 178, &c. The famous Dr Mead was a believer in the influence of the ſun and *moon* on the *human body*, and publiſhed a book to this purpoſe, entitled, *De Imperio Solis ac Lunæ in Corpore humano*: but this opinion has been exploded by moſt philoſophers as equally unreaſonable in itſelf, and contrary to fact. As the moſt accurate and ſenſible barometer is not affected by the various

rious poſitions of the moon, it is not likely that the human body ſhould be affected by them. Several learned and ingenious men, however, ſtill, conſider Dr Mead's doctrine as far from being unfounded.

(7.) **Moon, method of describing the phenomena of the.** M. Schroeter, of the Royal Society of Gottingen, has lately publiſhed a very curious and elaborate work in German, entitled *Selenotopographiſche Fragmente,* &c. or Selenotopographical Fragments, intended to promote a more accurate knowledge of the moon's ſurface. The ſeveral maps of the moon (See Astronomy, *Index*), which have been delineated by Hevelius, Ricciolus, Caſſini, and Mayer, are well known to every perſon converſant with aſtronomical ſubjects. It is evident that theſe delineations can give only a very general idea of the ſpots, together with their relative poſition on the lunar diſk; and as, with reſpect to us, the appearance of theſe muſt vary according to the direction in which the rays of the ſun fall on them, the moon's ſurface will not exactly correſpond with the repreſentation of it laid down in the map, except when it happens to be illuminated under the ſame angle as when this map was drawn. This conſideration induced the author to apply himſelf to the invention of a more accurate mode of deſcribing theſe phenomena than had hitherto been attempted. For this purpoſe, having provided himſelf with a teleſcope ſeven feet in length, conſtructed by Dr Herſchel, he reſolved, repeatedly, and under various angles of illumination, to obſerve and delineate very ſmall portions of the lunar diſk; in order that, by comparing his different drawings of the ſame objects, he might compile an accurate topographical deſcription of the moon's ſurface: but, in this manner, to form a complete lunar atlas, was an undertaking too extenſive for a ſingle perſon. He therefore found himſelf obliged to preſcribe more narrow limits to his deſign, and confined his plan to the delineation of the ſeveral portions of the moon's ſurface, under one angle only of illumination, and this a very ſmall one, that he might obtain more diſtinct and accurate obſervations and drawings of the ſhadows; intending at the ſame time to examine ſuch parts as appeared either more remarkable or leſs diſtinct than the reſt, by repeated obſervations under various angles of illumination: And the preſent volume contains the reſult of his obſervations, with reſpect to the northern parts of the lunar diſk. The author obſerves, that, through a teleſcope which magnifies a thouſand times, a lunar object of 190 feet in ſurface appears like a very ſmall point; and that, to be diſtinguiſhable with reſpect to ſhape, it muſt not be leſs than 800 feet in extent. He tells us, that for his obſervations he preferred thoſe times when the ſun's rays fell on the moon under the leaſt angle; that he carefully and repeatedly examined every object that could be diſtinguiſhed, and either actually meaſured its apparent diameter and the length of its ſhadow, or compared theſe dimenſions with others which he had already meaſured; and that he never uſed magnifiers of greater power than what was abſolutely neceſſary to render the object diſtinct. In order to facilitate the delineation, he applied to his teleſcope a projecting micrometer, divided into ſmall ſquares, which, by means of a braſs rod, could be placed at any diſtance from the eye, and always be kept parallel to the line of the moon's horns. His maps or drawings are orthographical projections; and his ſcale is ſo conſtructed, that 20 ſeconds of the moon's diſk correſpond with half an Engliſh inch on the map; thus the ſpace of 4 ſeconds is repreſented in the compaſs of a decimal line; and, according to M. Scrhoeter's computation, anſwer's to a German mile, or 3807 toiſes. The inconveniencies and inaccuracy of the common method of meaſuring the lunar mountains, induced him to contrive others capable of greater exactneſs, and more general application. Theſe he varied as the circumſtances of the caſe required; but they are all trigonometrical calculations of the height of the mountain, or the depth of the cavity from the angle of illumination and from the length of the ſhadow. If, as ſome have ſuppoſed, a great part of the moon's ſurface be volcanic, it is natural to expect that the marks of eruptions ſhould from time to time be diſcernible. A ſingle inſtance of this kind occurred to our author: ever ſince the 27th of Auguſt 1788, he had conſtantly ſeen a cavity, or, as he terms it, a *volcanic crater*, in the ſpot Hevelius, which he had never before perceived, though he had often examined this part of the moon with the utmoſt attention, and in the moſt favourable circumſtances. According to his conjectures, this phenomenon muſt have commenced between the 24th of October 1787, and the 27th of Auguſt 1788. He obſerved ſome alterations in the appearance of lunar objects, which, though too conſiderable to be attributed to the variation of light, were not ſufficiently permanent to be conſidered as the effect of volcanoes. Theſe he aſcribes to meteors; for though he does not ſuppoſe the moon to be ſurrounded with air, exactly like that which inveſts our globe, he thinks it probable that it may have an atmoſphere of ſome kind, in which ſome of the elements of bodies, decompounded on its ſurface, may be ſuſpended; and that ſome of the lunar mountains may emit nebulous vapours, not unlike the ſmoke of our volcanoes, which obſcure and diſguiſe the objects ſeen through them. In regard to thoſe bright points which have been ſeen on the moon's ſurface during eclipſes, and at other times on her unenlightened part, and which ſome have ſuppoſed to be burning volcanoes; Schroeter, after the moſt attentive examination of them, imagines that moſt of them muſt be aſcribed to the light reflected from the earth to the dark part of the moon's diſk, which returns it from the tops of its mountains, under various angles, and with different degrees of brightneſs. Some of theſe phenomena he ſuſpects to be no more than optical illuſions, ariſing from igneous meteors floating in our atmoſphere, which happen to fall within the field of the teleſcope. But the moſt intereſting part of this work conſiſts of the author's "Remarks on the Formation and phyſical Conſtitution of the Moon's Surface and Atmoſphere." See § 8.

(8.) **Moon, mountains, surface, atmosphere, &c. of the.** The ſurface of the moon appears to be much more unequal than that of our earth; and theſe inequalities have great variety both in form and magnitude. There are large irregular plains, on which are obſerved long and narrow ſtrata of hills running in a ſerpentine direction: ſome of the mountains form extenſive chains; others, which are in general the higheſt, ſtand alone, and are of a conical ſhape; ſome have craters; others form a circular ring incloſing a plain; and in the centre of many of theſe plains, as well as in the middle of ſome of the craters, other mountains are found, which have likewiſe their craters. Theſe mountains are various with reſpect to colour, ſome being much darker than others. The moſt lofty mountain on the ſurface of our globe is ſuppoſed to be Chimborazo, which is not 20,000 feet in height: but there are many in the moon which are *much higher*; that which is diſtinguiſhed by the name of *Leibnitz*, is not leſs than 25,000 feet. This elevation will appear more extraordinary, if compared with the moon's diameter, of which it is $\frac{1}{214}$th; whereas Chimborazo is not above $\frac{1}{1017}$th of that of the earth: thus conſidered, the lunar mountains are near five times as high as any on our globe. But this calculation is quite incredible, as it ſeems contrary to all the analogy of Nature, that the mountain of a *ſmall* planet ſhould be *higher* than thoſe of a *large* one. "The craters of the moon (adds Mr Schroeter) are circular, and ſurrounded with an annular bank of hills: they are remarkable for their width, many of them being from 4 to 15 geographical miles in diameter: ſome are not deeper than the level of the moon's ſurface; others are 9000, 12,000, and 15,000 feet in depth: that of one, which our author calls *Bernouilli*, is about 18,000 feet. The height of the annular bank is ſeldom equal to the depth of the crater which it ſurrounds; but the quantity of matter in the one appears to be in general nearly equal to the capacity of the other. The principal mountains and cavities ſeem to be connected by a ſeries of others of leſs magnitude; and ſometimes by hilly ſtrata, which, like the radii of a circle, may be traced to a common centre; this is generally either a mountain or crater, though not of the greateſt height or depth. Theſe hilly ſtrata, which, through ſmaller teleſcopes, appear like veins on the moon's ſurface, have often been miſtaken for torrents of lava; none of which, M. Schroeter ſays, he could ever diſcover. From all the preceding circumſtances, he concludes, that whatever may have been the cauſe of the inequalities of the moon's ſurface, it muſt not only have operated with great violence, but alſo have met with great reſiſtance; which inclines him to think, that the ſubſtance of this planet muſt originally have been very hard and refractory. He is of opinion, that theſe mountains and cavities muſt have been produced in conſequence of ſome great revolution, occaſioned by the action of a force directed from the centre towards the ſurface, and in this reſpect ſimilar to that which gave birth to our volcanoes: but he obſerves, that we have no reaſon to ſuppoſe it abſolutely volcanic, nor that it originated from fire. In ſome places, this force has only elevated the ſurface, and thus formed hills and mountains; in others, the ground has yielded to its violence, and has either been thrown up as a bank round the crater thus formed, or elſe falling into other cavities, has in part filled them up; after having exerted its greateſt violence in theſe mountaineous accumulations, it has diffuſed itſelf in various directions, and produced the hilly ſtrata which are obſerved to diverge from them, like the radii of a circle from the centre. In ſupport of this hypotheſis, it is alleged, that the largeſt craters have the leaſt depth, and that in the deepeſt there is the moſt equal proportion between the capacity of the crater, and the volume of the annular bank around it: but beſide the grand revolution here ſuppoſed, M. Schroeter is of opinion that there have been others of later date and leſs extent; to theſe he aſcribes the formation of ſecondary mountains, which ariſe either from the middle of the craters of the primary, or from the centre of a plain ſurrounded by a circle of hills; many of theſe have alſo craters, and, like the primary mountains, are connected by a ſeries of cavities and hilly ſtrata, that mark the progreſs of the cauſe by which they were produced. The new crater diſcovered by our author in the ſpot Hevelius, together with other circumſtances here enumerated, ſeem to indicate that the ſurface of the moon is far from being permanently ſettled and quieſcent. His obſervations confirm the opinion that the cavities viſible on the lunar ſurface do not contain water; hence he concludes, that there can be no extenſive ſeas and oceans, like thoſe which cover a great part of the earth; but he allows that there may be ſprings and ſmall rivers. The queſtion, *whether the moon be inhabited?* is not omitted by M. Schroeter, who obſerves, that though it be not adapted to beings organiſed as we are, this is no proof that it may not be peopled with intelligent agents, endued with bodily conſtitutions ſuitable to the nature and economy of the planet for which they are deſtined. With regard to a LUNAR ATMOSPHERE, the exiſtence of which has been a ſubject of much diſpute (See ASTRONOMY, *Index*), our author adduces a variety of proofs in ſupport of the affirmative ſide of the queſtion. He alſo makes a number of obſervations on ſeveral of its relative properties, compared with the ſame in our atmoſphere: ſuch as its greater dryneſs, rarity, and clearneſs; which, however, do not prevent its refracting the ſolar rays, having pointed out the circumſtance, that the mountains in the dark hemiſphere of the moon, near its luminous border, which are of ſufficient height to receive the light of the ſun, are the more feebly illuminated the more diſtant they are from that border: from which proofs of a refracting atmoſphere, he alſo deduced the probability of the exiſtence of a faint twilight, though his long ſeries of obſervations had not yet fully evinced it. He had, however, aſcertained the exiſtence of a twilight on Venus; and as one fortunate diſcovery often leads to another, he had no ſooner ſucceeded in his obſervations on that planet, than he was induced to direct his attention, for a ſimilar purpoſe, to the moon. In doing this, he applied the calculations and inferences he there made to ſome appearances he had already noticed on this ſatellite. It occurred to him, that if in fact there were a twilight on the moon, as there is on Venus and our earth, it could not, conſidering the greater rarity of its atmoſphere, be ſo conſiderable: that the veſtiges of it, allowing for the brightneſs of the luminous part of the moon, the ſtrong light that is thence thrown upon the field of the teleſcope, and in ſome meaſure the reflected light of our earth, could only be traced on the limb, particularly at the cuſps; and even this only at the time when our own twilight is not ſtrong, but the air very clear, and when the moon, in one of its leaſt phaſes, is in a high altitude, either in the ſpring, following the ſun two days after a new moon; or in the autumn, preceding the ſun in the morning, with the ſame aſpect: in a word, that the projection of this twilight will be the greater and more preceptible the more falcated the phaſe, and the higher the moon above the horizon, and out of our own twilight. All the requiſite circumſtances do not often coincide. M. Schroeter, however, was ſo fortunate as to be favoured with a combination of them on the 24th of February 1792: And the obſervation proved in every reſpect ſo complete, and the inferences deducible from it appeared to him ſo new and intereſting, that he could not with-hold the immediate communication of it from the public. His obſervations concerning both the Moon and Venus have been accordingly detailed in a paper ſent to the Royal Society of London, and inſerted in their Tranſactions for 1792; from which the following reſpecting the Moon are extracted. On the above mentioned evening, at 5h. 40′, two days and 12 hours after the new moon, when in conſequence of the libration the weſtern border of the grey ſurface of the Mare Criſium was 1′ 20″ diſtant from the weſtern limb of the moon, the air being perfectly clear, I prepared my ſeven-feet reflector, magnifying 74 times, in order to obſerve the firſt clearing up of the dark hemiſphere, which was illuminated only by the light of our earth, and more eſpecially to aſcertain whether in fact this hemiſphere, which, as is well known, is always ſomewhat more luminons at the limb than in the middle, would emarge out of our twilight at many parts at once, or firſt only at the two cuſps. Both theſe points appeared now, moſt diſtinctly and decidedly, tapering in a very ſharp, faint, ſcarce any where interrupted, prolongation; each of them exhibiting, with the greateſt preciſion, its fartheſt extremity faintly illuminated by the ſolar rays, before any part of the dark hemiſphere could be diſtinguiſhed. But this dark hemiſphere began ſoon after to clear up at once at its border, though immediately only at the cuſps, where, but more particularly at their points, this border diſplayed, on both at the ſame time, a luminous margin, above a minute in breadth, of a very pale grey light, which, compared with that of the fartheſt extremities of the cuſps themſelves, was of a very different colour, and relatively as faint as the twilight I diſcovered on the dark hemiſphere of Venus, and that of our own earth, when compared with the light immediately derived from the ſun. This light, however, faded away ſo gradually towards the eaſt, as to render the border on that ſide perfectly undefined, the termination loſing itſelf imperceptibly in the colour of the ſky. I examined this light with all poſſible care, and found it of the ſame extent at both points, and fading away at both in the ſame gradual proportion. But I alſo, with the ſame caution, explored whether I could diſtinguiſh any part of the limb of the moon farther towards the eaſt; ſince, if this crepuſcular light had been the effect of the light reflected from our globe, it would undoubtedly have appeared more ſenſibly at the parts moſt remote from the glare of the illuminated hemiſphere. But, with the greateſt exertion of my viſual powers, I could not diſcover any part of the, as yet, wholly darkened hemiſphere, except one ſingle ſpeck, being the ſummit of the mountainous ridge Leibnitz, which was then ſtrongly illuminated by the ſolar light: and indeed eight minutes elapſed before the remainder of the limb became viſible; when not only ſeparate parts of it, but the whole, diſplayed itſelf at once. This alone gave me certain hopes of an ample recompence, and ſatisfied me that the principles I had laid down in my Selenotop. Fragm. § 525. *et ſeq.* concerning the atmoſpheres of the planets, and eſpecially of the moon, are founded on truth. But a ſimilar obſervation made on the 6th, after ſeven o'clock, afforded me ſeveral collateral circumſtances, which ſtrongly corroborate what I have there advanced on this ſubject. The whole limb of the dark hemiſphere, illuminated only by the reflected light of our globe, appeared now ſo clear and diſtinct, that I could very readily diſcern not only the large but alſo the ſmaller ſpots, and among theſe Plato, Ariſtarchus, Menelaus, Manilius, Copernicus, &c. and even the ſmall ſpeck to the NW. of Ariſtarchus, marked *b*, Tab. XXVII. fig. 1. of the Fragments. I could apply the uſual power, magnifying 161 times; and had full leiſure, and the means, to examine every thing carefully and repeatedly, and to take very accurate meaſurements." Mr Schroeter next gives a drawing of this phenomenon, "although (as he acknowledges) a juſt idea of ſo delicate a phenomenon as this crepuſcular light cannot poſſibly be conveyed by a drawing, but muſt be gathered from actual inſpection." But for this delineation, with the deſcription of the phenomena, we muſt refer to his paper in the *Philoſ. Tranſ.* and ſhall only quote his inferences drawn from the whole. "I need hardly inſiſt upon the proofs, that the very faint pyramidal glimmering light, obſerved on the 24th February at the extremities of both cuſps, could by no means be the immediate effect of the ſolar light, all the circumſtances of the obſervations militating uniformly and decidedly againſt this ſuppoſition, which, were it true, would oblige us to admit a moſt unaccountable diminution of light, and thence alſo a denſity of the lunar atmoſphere, that ought to exceed even the denſity of ours; a fact abſolutely contradicted by all the lunar obſervations hitherto made. This light, indeed, was ſo faint, that it diſappeared at 7 h. 20′, when the moon approached the horizon; whilſt on the other hand, Ariſtarchus, which had no light but what it received from the earth, was ſtill very diſtinguiſhable; and the ſummit of Leibnitz *l*, fig. 1. (which, though far within the dark hemiſphere, was, however, illuminated by the immediate ſolar rays) diſplayed a degree of brightneſs, which, although when compared with that of the cuſp *d e f*, it appeared very faint and dwindling

dling, equalled, however, that of our Peak of Teneriffe. Nor can it be conceived why this glimmering light broke off ſo ſuddenly at both the cuſps, without a progreſſive diminution. It can hardly be ſuppoſed, that ſimilar, grey, prominent, flat areas, of the ſame form and dimenſions, and comparatively of a faint light, which, whilſt in the dark hemiſphere, they derive immediately from the ſun, exiſt on all parts of the moon; more eſpecially as, at the places obſerved, the limb happened to exhibit throughout an exact ſpherical form, without the leaſt ſenſible inequality; and as in both the bordering regions of the northern and ſouthern hemiſpheres, eſpecially in the latter, no ſuch grey prominent planes are any where diſcernible. It may then be aſked, why did this faint glimmering light appear at both cuſps, along equal arcs of the limb, of equal length and breadth, and of the ſame pyramidal form? and why did its farther extremity blend itſelf with the terreſtrial light of the dark hemiſphere, which, according to a great number of my ſelenotopographic obſervations, is by no means the caſe, even with thoſe grey prominent areas, which being at ſome diſtance on the dark ſide of the terminating border, are nevertheleſs illuminated immediately by the ſun? Theſe, therefore, could certainly not derive their light immediately from the ſun; whence this appearence, like the ſimilar ones on the planet Venus, can only be aſcribed to the ſolar rays reflected by the atmoſphere of the moon upon thoſe planes producing on them a very faint, gradually diminiſhing, glimmering light, which at laſt loſes itſelf in the reflected terreſtrial light, in the ſame manner as our twilight blends itſelf with the light of the moon. Every circumſtance of the above obſervation ſeems to me to confirm this ſuppoſition; and hence the obſervation itſelf, which though ſingle, was however a moſt fortunate and complete one, muſt appear of no ſmall degree of importance, ſince it not only confirms the obſervations and inferences on the long conteſted lunar atmoſphere contained in my Selenotop. Fragm. but alſo furniſhes us with many more lights concerning the atmoſphere of planets in general than had been afforded us by all thoſe obſervations collectively. This, and the mathematical certainty that the phenomenon is in fact nothing but a real twilight in the lunar atmoſphere, he farther evinces by a ſeries of theoretical deductions and calculations, which do not admit of being here ſtated. Among other reſults, it appears, that the lower and more denſe part of the lunar atmoſphere, that part, namely, which has the power of reflecting this bright crepuſcular light, is only 1356 Paris feet in height; and hence it will eaſily be explained how, according to the different librations of the moon, ridges of mountains, even of a moderate height, ſituated at or near the terminating border, may partially interrupt, or at times wholly prevent, this crepuſcular light, either at one or the other cuſp, and ſometimes at both. "I cannot hence (ſays our author) but conſider the diſcovery I here announce as a very fortunate one, both as it appears to me deciſive, as it may induce future obſervers to direct their attention to this phenomenon. Admitting the validity of this new obſervation, which I think cannot well be called in queſtion, I proceeded now to deduce from it the following inferences. 1. It confirms, to a degree of evidence, all the ſelenotopographic obſervations I have been ſo ſucceſsful as to make on the various and alternate changes of particular parts of the lunar atmoſphere. If the inferior and more denſe part of this atmoſphere be in fact of ſufficient denſity to reflect a twilight over a zone of the dark hemiſphere 2° 34′, or 10½ geographical miles in breadth, which ſhall in intenſity exceed the light reflected upon its dark hemiſphere by the almoſt wholly illuminated diſk of our earth; and if, by an incidental computation, this denſe part be found to meaſure 1356 feet in perpendicular height, it may, according to the ſtricteſt analogy, be aſſerted, that the upper, and gradually more rarified ſtrata, muſt, at leaſt, reach above the higheſt mountains in the moon. And this will appear the more evident, if we reflect, that notwithſtanding the inferior degree of gravitation on the ſurface of the moon, which Newton has eſtimated at ſomewhat leſs than one ſixth of that on our earth, the lower part of its atmoſphere is nevertheleſs of ſo conſiderable a denſity. This conſiderable denſity will, therefore, fully account for the diminution of light obſerved at the cuſps, and on the high ridges Leibnitz and Doerfel, when illuminated in the dark hemiſphere; as alſo for the ſeveral obſcurations and returning ſerenity, the eruptions, and other changes, I have frequently obſerved in the lunar atmoſphere. This obſervation alſo implies: 2. That the atmoſphere of the moon is, notwithſtanding this conſiderable denſity, much rarer than that of our earth. And this indeed is ſufficiently confirmed by all our other lunar obſervations. I think I may aſſert, with the greateſt confidence, that the clearer part of our twilight, when the ſun is 4° below our horizon, and when we can conveniently read and write by the light we receive from it, ſurpaſſes conſiderably in intenſity the light which the almoſt wholly illuminated diſk of our earth reflects upon the dark hemiſphere of the moon 2 days and a half before and after the new moon. But ſhould we even admit an equal degree of intenſity, it will, however, appear from computation, that our inferior atmoſphere, which reflects as ſtrong a light over 4° as that of the moon does over 2° 34′ of their reſpective circumferences, muſt be at leaſt eight times higher than that of the moon. 3. The ſtriking diminution of light I noticed in my 12 years obſervations on Venus, likewiſe indicates, that the atmoſphere of that planet, which is in many reſpects ſimilar to ours, is much denſer than that of the moon; and this will be ſtill farther corroborated, if we compare together the ſeveral meaſurements and computations made concerning the twilights of different planets. There is no doubt but that the fainteſt twilight of Venus, as ſeen either before or after the riſing and ſetting of the ſun acroſs our twilight, is much brighter than that of the moon; and it appears, moreover, from computation, that the denſer parts of the atmoſphere of Venus meaſures at leaſt 15000 Paris feet in height, and ſpreads its twilight 67 geographical miles into the dark hemiſphere, while the denſer part of the lunar atmoſphere, whoſe height does not exceed 1356 feet, produces a faint twilight not above 10½ geographical miles in breadth. Thus, as my ſucceſsful obſervations on the twilight of Venus led me to the diſcovery of that of the moon, ſo did theſe latter reciprocally confirm the former: and thus, whichever way we contemplate the ſubject, we muſt be ſtruck with the coincidence that prevails throughout. 4. But if the lunar atmoſphere be comparatively ſo rare, it follows, that the inflection of light produced by it cannot be very conſiderable; and hence does the computation of M. du Sejour, according to which the inflection of the ſolar rays which touch the moon amounts to no more than 4½″, receive an additional degree of authenticity. Beſides which, 5. As the true extent of the brighteſt lunar twilight amounts to 2° 34′, the obliquity of the ecliptic in the moon only to 1° 29′; the inclination of the orbit of the moon, on the contrary, to 5° 15′, and its ſynodic period, during which it performs a revolution round its axis, is = 29 d. 12 h.; it follows, that its brighteſt twilight, to where it loſes itſelf in the light reflected by the almoſt fully illuminated diſk of our earth, muſt, at leaſt at its nodes, laſt 5 h. 3′, and that it will be ſtill longer at other parts of the orbit, according to the ſituation of the nodes. 6. And laſtly, it being a well known fact that the fixed ſtars as they approach the moon, diminiſh in ſplendor at the moſt only a very few ſeconds before their occultations, it was natural for me after the ſucceſsful obſervations I had made on the twilight of the moon, to pay particular attention to this circumſtance. On the 25th Feb. at 6 h. P. M. the ſky being very clear, the limb of the dark part of the moon appeared uncommonly diſtinct; and only a few ſeconds of a degree from its edge was ſeen a teleſcopic ſtar of about the 10th or 12th magnitude. I counted full 20″ before its occultation, and 18½ of theſe without the leaſt perceptible diminution of light. The ſtar, however, began now gradually to fade, and after the remaining 1½′, during which I obſerved it with all poſſible attention, it vaniſhed in an inſtant. This obſervation agrees perfectly with the above computations. Although it be proved that the inferior denſe part of the lunar atmoſphere reflects a ſtronger light than that which the dark hemiſphere receives from an almoſt fully illuminated diſk of our earth; and although, conſidering the inferiority of gravitation on the ſurface of the moon, there be no doubt that this denſe part, together with the ſuperior gradually more rarified regions of its atmoſphere, muſt extend far above its higheſt mountains; it is yet a fact, that the breadth of this obſerved twilight, to where it loſes itſelf in our reflected terreſtrial light, does not meaſure more than 2′ 34′: it is therefore highly probable, that its greateſt extent, in the moſt favourable phaſes near our new moon, can never exceed the double of the above arc, or 5° 8′; and hence we can only allow a perpendicular height of an atmoſphere, capable of inflecting the ſolar rays, which at moſt meaſures 5376 feet: nor is it very likely that, unleſs accidental and hitherto unknown circumſtances ſhould occaſionally condenſe different parts of the atmoſphere, theſe upper ſtrata ſhould materially affect the diſtinctneſs of a ſtar ſeen through it. But admitting the height of the atmoſphere, which may affect the brightneſs of a fixed ſtar, not to be leſs than 5376 feet, this will amount to an arc of only 0·94″, or not quite one ſecond; and as the moon deſcribes an arc of 1″ in 2″ of time, it follows, that in general the fading of a ſtar, which approaches to an occultation, cannot laſt quite 2″ in time; that if the appulſe be at a part of a limb of the moon where a ridge of mountains interferes, the gradual obſcuration will laſt a ſhorter time; and that it may under ſome circumſtances of this nature be even inſtantaneous."

(9.) MOON, OCCULTATION OF JUPITER BY THE. To the foregoing obſervations, M. Schroeter ſubjoins the following account of an occultation of Jupiter by the moon when near its full, which occurred to him by mere accident on the 7th of April 1792. "The ſky being very ſerene, and Jupiter uncommonly bright, I prepared my ſeven-feet reflector, magnifying 74 times, in hopes that the ſtrong light and diſtinctneſs it afforded would enable me to compare the appearances of this phenomenon with the reſults which I had deduced from my late obſervations on the height and denſity of the atmoſphere of the moon. *Fig.* 4. *Plate* CCXX, repreſents the ſituation of Jupiter's four ſatellites, as they appeared, moſt diſtinctly, two of them to the weſtward, the ſecond about one, and the firſt near two of Jupiter's diameters diſtant from its limb; and the two others to the eaſtward, the third about ſeven and the fourth near eight of the ſame diameters, diſtant from the ſaid limb. *Fig.* 5. ſhows Jupiter with its belts, and of a ſomewhat ſpheroidical form, as it now appeared to me, and as diſtinctly as I had ever ſeen it. The equatorial belt, from *a* to *d*, was very apparent. It conſiſted properly of two zones, *a b* and *c d*, of a browniſh grey colour, with a more luminous interval *b c* between them. At *e* and *f* were two comparatively well defined ſtripes which I had noticed for many years back, but which now croſſed the whole diſk; and the polar regions appeared again, from *g* and *h*, more dim and grey than the bright part of the planet. But what particularly ſtruck me, were two nebulous undefined ſpots, *i* and *k*, which were ſenſibly darker than the principal zone *d d*; and at *l* a ſtill more remarkable, circular, though imperfectly defined ſpot, ſomewhat brighter than the luminous interval between the zones, and perfectly ſimilar to the remarkable luminous ſpot which I had obſerved in 1786 and 1787 on the ſame part of Jupiter, and which then led me to ſome very unexpected inferences concerning the atmoſphere of that planet. Theſe favourable circumſtances led me to the following accurate obſervation, which I was certain would prove inſtructive to me. At 10 h. 40′ 50″ I ſaw the ſpot *i* at about the middle of its parallel; and immediately after began the occultation; than which a more diſtinct and beautiful one was perhaps never ſeen. *Immerſions.* The weſtern, preceding, firſt ſatellite, diſappeared behind the ſharp bright limb of the moon, at 10 h. 43′ 12″. The 2d ſatellite diſappeared, without becoming at all indiſtinct, exactly at 10 h. 45′ 19″. The weſtern limb of Jupiter came in contact, moſt diſtinctly, with the eaſtern limb of the moon, at 10 h. 46′ 32″·5. Jupiter's eaſtern limb diſappeared as diſtinctly, at 10 h.

48′ 20″·5. This immerſion took place, as repreſented in *fig.* 6. to the eaſtward of Ariſtarchus, at about the 25th degree of north latitude. The 3d ſatellite diſappeared, after having been for about one or two ſeconds faint and indiſtinct, at 10 h. 58′ 57″·5. The 4th ſatellite, which appeared the leaſt of them all, became undiſcernible near the limb, and vaniſhed at about 11 h. 2′ 16″. *Emerſions.* The two preceding firſt and ſecond ſatellites were here likewiſe of uſe in determining preciſely the emerſion of both the limbs of Jupiter from the dark hemiſphere of the moon. The firſt appearance of Jupiter's weſtern limb was very diſtinct at 11 h. 43′ 54″. Emerſion of the eaſtern limb, as diſtinct, at 11 h. 45′ 39″·5. This emerſion took place, as repreſented in *fig.* 7. to the north-eaſtward of Seneca (B, Tab. VIII. of the Frag.), at about the 23d degree of north latitude. The emerſion of the next, or third ſatellite, was not obſerved. That of the 4th was diſtinct at 11 h. 59′ 1″. This obſervation gave me the more ſatisfaction, as it ſingularly contributed to confirm the diſcovery I had been ſo fortunate as to make of the twilight in the moon, and the height and denſity of the lower ſtratum of its atmoſphere. Experience has ſufficiently proved, that a ſtronger will ever obſcure a fainter light; and it follows hence that the light of a bright ſtar approaching the moon, when full or nearly ſo, will loſe ſomething of its luſtre: but little can be inferred in favour of an atmoſphere either of the moon or of Mars, from the obſervation of Caſſini: in which, as Dr Herſchel has illuſtrated by ſome obſervations of his own, a ſtar in Aquarius, of the ſixth magnitude, and as yet ſix minutes diſtant from Mars, diminiſhed in light when both were ſeen in the ſame field of the teleſcope. A mere apparent diminution of light, occaſioned by the glare of a larger luminous object, when ſeen at the ſame time with a ſmaller one in the field of the teleſcope, is one thing; and another thing is a real indiſtinctneſs of the ſmall luminous body, which increaſes in proportion as they approach nearer to each other. It was very natural for Jupiter to diminiſh in brightneſs when it approached ſo near to the moon, then almoſt at its full, as to be ſeen at the ſame time in the field of the teleſcope, which was in fact the circumſtance of this obſervation; but I could not obſerve any progreſſive variation of light in the eaſtern and weſtern, equally luminous diſks, proportional to their diſtances from the limb of the moon, much leſs a real indiſtinctneſs; and this neither when the limbs of the two planets were nearly in contact, nor when Jupiter was partly, or about one half covered by the moon. It was a ſight truly gratifying to an eye accuſtomed to the light of the moon, or in general to ſimilar obſervations, to behold how Jupiter, at its immerſion as well as emerſion, being half or more than half covered by the moon, exhibited its belts and other parts as diſtinctly cloſe to the limb of the moon, as it does at ſome diſtance from it; and had I not already ſucceeded in my numerous obſervations on the atmoſphere of the moon, and very recently in thoſe which enabled me to determine its twilight, I ſhould perhaps have adopted the doubts the ancient aſtronomers entertained concerning the exiſtence of a lunar atmoſphere; and this the rather, as when Jupiter in its immerſion was ſo far covered, that the luminous ſpot *l*, *fig.* 5. was cloſe to the moon, I could plainly diſtinguiſh this ſpot, although it be in itſelf by no means very perceptible. Such, however, muſt have been the appearances, according to my new obſervations and meaſurements of the twilight of the moon: for if it be proved, that the extent of this twilight, to where it loſes itſelf in the light reflected from the almoſt wholly illuminated diſk of our earth, amounts to no more than an arc of 2° 34′ of the circumference of the moon, and if it be hence demonſtrable, that its greateſt dilatation does barely amount to 5° 8′, and the perpendicular height of that part of the lower more condenſed ſtratum of its atmoſphere, which is capable of reflecting the ſolar rays, and of producing ſome other, perhaps more remarkable, obſcurities in the ſtars ſeen through it, does not exceed 5000 Paris feet, and hence cannot reach above one ſecond of a degree above the limb of the moon; we need not wonder that ſo ſmall a magnitude, which loſes itſelf in the inequalities of the limb, many parts of which are known to be conſiderably mountainous, ſhould not become ſenſible, eſpecially at the approach of a body of ſo large a diameter as Jupiter, and when ſo ſmall a magnifying power is applied. And thus may I with confidence aſſert a perfect coincidence between this and my many other obſervations. The appearance, *fig.* 8. when Jupiter at the emerſion, the objects being particularly ſharp and diſtinct, came forth from behind the moon, which now covered no more than one quarter of its diameter, was truly ſplendid and ſatisfactory: and I muſt here particularly mention the circumſtance, that the part of the moon's dark hemiſphere, between its bright terminating edge *m n* and its outward limb, bordering upon the emerging planet *o p*, was particularly opaque, and hence produced a very ſtriking effect. I omit entering here upon any farther conſiderations: and ſhall conclude with obſerving, that, after the occultation was completely ended, the luminous ſpot *l* had at 12 h. 1′ ſo far advanced in its parallel *d e*, as to have reached to within $\frac{1}{8}$, or at moſt $\frac{1}{7}$ of its whole length of the weſtern limb: and that on the 28th of March, five days after a new moon, I obſerved an occultation of a very diſtinct, though teleſcopic, ſtar, by the dark hemiſphere of the moon; in which, agreeably to the above obſervation, not the leaſt gradual diminution of light or indiſtinctneſs could be perceived, the ſtar being ſeen to vaniſh on a ſudden."

* **Moon-beam.** [*moon* and *beam.*] Rays of lunar light.—The diviſion and quavering, which pleaſe ſo much in muſic, have an agreement with the glittering of light, as the *moon beams* playing upon a wave. *Bacon.*—On the water the *moon-beams* played, and made it appear like floating quickſilver. *Dryden.*

Moon-blind, *adj.* } in farriery. See
Moon-blindness, *n. ſ.* } Blindness, § 38
and Farriery, *Part* IV. *Sect.* I.

* **Moon-calf.** *n. ſ.* [*moon* and *calf.*] 1. A monſter; a falſe conception: ſuppoſed perhaps anciently to be produced by the influence of the moon.—

How cam'ſt thou to be the ſiege of this *moon-calf.* *Shak.*

2. A dolt; a ſtupid fellow.—

The ſotted *moon-calf* gapes. *Dryden's Juv.*

* **Moon-eyed.** *adj.* [*moon* and *eye.*] 1. Having eyes affected by the revolutions of the moon. 2. Dim eyed; purblind. *Ainſ.*

Moon-eyes, *n. ſ.* in the manege. A horſe is ſaid to have moon-eyes, when the weakneſs of his eyes increaſes or decreaſes according to the courſe of the moon; ſo that in the wane his eyes are muddy and troubled, and at new moon clear; but ſtill he is in danger of loſing his eye-ſight entirely. See **Farriery**, *Part* IV. *Sect.* I.

* **Moonfern.** *n. ſ.* [*hemionitis*, Lat.] A plant. *Ainſ.*

* **Moon-fish.** *n. ſ.* *Moon-fiſh* is ſo called, becauſe the tail fin is ſhaped like a half moon. *Grew.*

* **Moonless.** *adj.* [from *moon.*] Not enlightened by the moon.—

Aſſiſted by a friend, one *moonleſs* night,
This Palamon from priſon took his flight. *Dryd.*

(1.) * **Moonlight.** *adj.* [*moon* and *light.*] Illuminated by the moon.—

If you will patiently dance in our round,
And ſee our *moonlight* revels, go with us. *Shak.*
What beck'ning ghoſt along the *moonlight* ſhade
Invites my ſteps? *Pope.*

(2.) * **Moonlight.** *n. ſ.* The light afforded by the moon.—Their biſhop and his clergy, being departed from them by *moonlight*, to chooſe in his room any other biſhop, had been altogether impoſſible. *Hooker.*—

Thou haſt by *moonlight* at her window ſung,
With feigning voice, verſes of feigning love.
Shakeſpeare.

(1.) * **Moon-seed.** *n. ſ.* [*meniſpermum*, Latin.] —The *moon-ſeed* hath a roſaceous flower: the pointal is divided into three parts at the top, and afterwards becomes the fruit or berry, in which is included one flat ſeed, which is, when ripe, hollowed like the appearance of the moon. *Miller.*

(2.) **Moon-seed.** See **Menispermum.**

(1.) * **Moonshine.** *n. ſ.* [*moon* and *ſhine.*] 1. The luſtre of the moon.—

Pinch him, and burn him; and turn him about,
Till candles, and ſtarlight, and *moonſhine* be out.
Shak.
I, by the *moonſhine*, to the windows went;
And, ere I was aware, ſigh'd to myſelf. *Dryd.*

2. [In burleſque.] A month.—

I am ſome twelve or fourteen *moonſhines*
Lag of a brother. *Shak. King Lear.*

(2.) * **Moonshine.** } *adj.* [*moon* and *ſhine.*] Il-
* **Moonshiny.** } luminated by the moon: both ſeem a popular corruption of *moon-ſhining.*—

Fairies, black, grey, green, and white,
You *moonſhine* revellers. *Shak.*

—Although it was a fair *moonſhine* night, the enemy thought not fit to aſſault them. *Clarendon.*—I went to ſee them in a *moonſhiny* night. *Addiſon.*

(1.) * **Moonstone.** *n. ſ.* A kind of ſtone. *Ainſ.*

(2.) *The* **Moon-stone** is a ſpecies of a ſiliceous earth, of a clear white colour, approaching to that of milk. In a certain poſition, it reflects a ſtrong light like mother-of-pearl; in others, it ſhows ſpots of a carnation colour. It is found in pieces with obtuſe angles, ſometimes of a quadrangular figure. Werner ſuppoſes it to be the *androdamas* of Pliny, the *giraſole* of the Italians, and the *water opal* of Ceylon; and is claſſed with the *opal*, and the *cat's eye.* (See **Mineralogy**, *Part* II. *Chap.* IV. *Gen.* II. *Sp.* 4. *Var.* 3.) According to Magellan, it reflects a whitiſh light, with various ſhades of a few intermixed colours on a bluiſh bottom, like the face of the *moon*, when high enough not to appear reddiſh by the interpoſition of earthy vapours. The **iris**, or *rainbow ſtone*, is a moonſtone in which the yellow, purple, and blue rays are moſt conſpicuouſly reflected. It is of a reddiſh brown, but, on holding it in the light of the ſun, it appears like a rainbow.

* **Moonstruck.** *adj.* [*moon* and *ſtruck.*] Lunatick; affected by the moon.—

Demoniack phrenzy, moping melancholy,
And *moonſtruck* madneſs. *Milton's Par. Loſt.*

(1.) * **Moon-trefoil.** *n. ſ.* [*medicago*, Latin.] A plant.—The *moon-trefoil* hath a plain orbiculated fruit, ſhaped like a half moon. *Miller.*

(2.) **Moon-trefoil.** See **Medicago.**

(1.) * **Moonwort.** *n. ſ.* [*moon* and *wort.*] Stationflower; honeſty.

(2.) **Moonwort**, in botany. See **Lunaria.**

* **MOONY.** *adj.* [from *moon.*] Lunated; having a creſcent for the ſtandard reſembling the moon.—

Encount'ring fierce
The Solymean ſultan, he o'erthrew
His *moony* troops. *Philips.*
The Soldan galls th' Illyrian coaſt;
But ſoon the miſcreant *moony* hoſt
Before the victor croſs ſhall fly. *Fenton.*

MOONZIE, a ſmall pariſh of Scotland, in Fifeſhire, 2 miles from Cupar; 2½ miles long, and 1½ broad; containing about 1050 acres. The ſurface is partly hilly; the ſoil thin, but fertile. The population, in 1793, was 171; decreaſe 78 ſince 1755. The number of horſes was 35.

(1.) **MOOR**, Sir Karel, or Sir Charles, **de**, a capital painter of portraits, hiſtory, and converſations, was born at Leyden in 1656; and was a diſciple of Gerard Douw, with whom he continued for a conſiderable time. He afterwards ſtudied ſucceſſively under Abraham Vanden Tempel, Francis Mieris, and Godfrey Schalcken. He painted the portraits of Prince Eugene and the Duke of Marlborough on horſeback; a picture, for which he was created a knight of the Roman empire. He likewiſe painted the portrait of Peter the Great of Muſcovy; and an extraordinary number of other portraits, for which he received great prices. He died in 1738.

(2.) * **Moor.** *n. ſ.* [*moer*, Dutch; *modder*, Teutonick, clay.] 1. A marſh; a fen; a bog; a tract of low and watery grounds.—While in her girliſh age ſhe kept ſheep on the *moor*, it chanced that a London merchant paſſing by ſaw her, and liked her, begged her of her poor parents, and carried her to his home. *Carew.*—In the great level near Thorny, ſeveral trees of oak and fir ſtand in firm earth below the *moor*. *Hale.*—

All the *moor* 'twixt Elverſham and Dell.
Spenſer.

2. [*Maurus*, Latin.] A negro; a black-a-moor.—I ſhall anſwer that better than you can the getting

preſerve great animoſity againſt the Moors, whom they confound with the Arabs, and conſider as uſurpers. They thus contract in their retreats a ferocity of mind, and a ſtrength of body, which makes them more fit for war and every kind of labour than the Moors of the plain in general are. The independence they boaſt of gives even a greater degree of expreſſion to their countenance. The prejudices of their religion makes them ſubmit to the authority of the emperors of Morocco; but they throw off the yoke at their pleaſure, and retire into the mountains, where it is difficult to attack or overcome them. The Brebes have a language of their own, and never marry but among each other. They have tribes or caſiles among them, who are exceedingly powerful both by their number and courage. Such are thoſe of Gomera on the borders of Rif, of Gayroan towards Fez, of Timoor extending along mount Atlas from Mequinez to Tedla, of Shavoya from Tedla to Duquella, and of Miſhboya from Morocco to the ſouth. The emperor of Morocco keeps the children of the chiefs of theſe tribes at court as hoſtages for their fidelity. The Brebes have no diſtinction of dreſs; they are always clothed in woollen like the Moors; and tho' they inhabit the mountains, they rarely wear any thing on their heads. The mountaineers, as well as their wives, have exceedingly fine teeth; and poſſeſs a degree of vigour and intrepidity which diſtinguiſhes them from the inhabitants of the plains. It is common for them to hunt lions and tigers; aud the mothers have a cuſtom of decorating their children with a tiger's claw or the remnant of a lion's hide on the head, thinking that by this means they will acquire ſtrength and courage; and from a ſimilar ſuperſtition, young wives are in uſe to give their huſbands the ſame as a ſort of amulets. The Brebes and the Shellu having a language common to themſelves, and unknown to the Moors, both muſt have had the ſame origin, notwithſtanding the difference there is in their mode of life. The *Shellu* live on the frontiers of the empire towards the ſouth; their population is by no means ſo great as that of the Brebes, nor are they ſo ferocious: they do not marry with other tribes; and though they practiſe many ſuperſtitious rites, they are faithful obſervers of their religion.

ii. *The* MOORS OF THE PLAINS may be ſubdivided into thoſe who lead a paſtoral life, and thoſe who inhabit the cities. The former live in tents; and that they may allow their ground a year's reſt, they annually change the place of their encampments, and go in ſearch of freſh paſturage; but they cannot take this ſtep without acquainting their governor. Like the ancient Arabs, they are entirely devoted to a paſtoral life: their encampments, which they call *douhars*, are compoſed of ſeveral tents, and form a creſcent; or they are ranged in two parallel lines, and their flocks, when they return from paſture, occupy the centre. The entrance of the douhar is ſometimes ſhut with faggots of thorns; and the only guard is a number of dogs, that bark inceſſantly at the approach of a ſtranger. Each douhar has a chief, ſubordinate to an officer of the higheſt rank, who has under his adminiſtration a number of camps; and ſeveral of theſe ſubordinate diviſions are united under the government of a bacha, who has often 1000 douhars in his department. The tents of the Moors, viewed in front, are of a conical figure; they are from 8 to 10 feet high, and from 20 to 25 feet long; like thoſe of high antiquity, they reſemble a boat reverſed. They are made of cloth compoſed of goats and camels hair, and the leaves of the wild palm, by which they are rendered impervious to water; but at a diſtance their black colour gives them a very diſagreeable look. The Moors, when encamped, live in the greateſt ſimplicity, and exhibit a faithful picture of the inhabitants of the earth in the firſt ages of the world. The nature of their education, the temperature of the climate, and the rigour of the government, diminiſh the wants of the people, who find in their plains, in the milk and wool of their flocks, every thing neceſſary for food and clothing. Polygamy is allowed among them; a luxury ſo far from being injurious to a people who have few wants, that it is a great convenience in the economy of thoſe ſocieties, becauſe the women are intruſted with the whole care of the domeſtic management. In their half-cloſed tents, they are employed in milking the cows for daily uſe; and when the milk abounds, in making butter, in picking their corn, barley, and pulſe, and grinding their meal, which they do daily in a mill compoſed of two ſtones about 28 inches in diameter, the uppermoſt having a handle, and turning on an axis fixed in the under one; they make bread likewiſe every day, which they bake between two earthen plates, and often upon the ground after it has been heated by fire. Their ordinary food is the *cooſcooſoo*; which is a paſte made with their meal in the form of ſmall grains like Italian paſte. This cooſcooſoo is dreſt in the vapour of boiling ſoup, in a hollow diſh perforated with many ſmall holes in the bottom, and the diſh is incloſed in a kettle where meat is boiled; the cooſcooſoo, which is in the hollow diſh, grows gradually ſoft by the vapour of the broth, with which it is from time to time moiſtened. This ſimple food is very nouriſhing, and even agreeable. They eat it with milk or butter indifferently; but thoſe of higher rank, ſuch as the governors of provinces and lieutenants, who live in the centre of the encampments, add to it ſome ſucculent broth, made with a mixture of mutton, poultry, pigeons, or hedgehogs, and then pour on it a ſufficient quantity of freſh butter. Theſe officers receive ſtrangers in their tents with the ſame cordiality that Jacob and Laban ſhowed to their gueſts. Upon their arrival a ſheep is killed and immediately dreſſed; if they are not provided with a ſpit, they inſtantly make one of wood; and this mutton roaſted at a briſk fire, and ſerved up in a wooden diſh, has a very delicate colour and taſte. The women in their tents likewiſe prepare the wool, ſpin it, and weave it into cloth on looms ſuſpended the whole length of the tent. Each piece about five ells long and one and a half broad; it is neither dreſſed nor dyed, and it has no ſeam; they waſh it when it is dirty; and it is the only habit of the Moors, night and day. It is called *Haique*, and is the true model of the ancient draperies.

(4.) **Moors, Dress, Customs, &c. of the.** The Moors of the plains wear nothing but their woollen ſtuff; they have neither ſhirts nor drawers. Linen among theſe people is a luxury known only to thoſe of the court or the city. The whole wardrobe of a country Moor in eaſy circumſtances conſiſts in a haique for winter, another for ſummer, a red cap, a hood, and a pair of ſlippers. The common people both in the country and in towns wear a kind of tunic of woollen cloth, white, grey, or ſtriped, which reaches to the middle of the leg, with great ſleeves and a hood; reſembling the habit of the Carthuſians. The women's dreſs in the country, is likewiſe confined to a haique, which covers the neck and the ſhoulders, and is faſtened with a ſilver claſp. The ornaments they are fondeſt of are ear-rings, which are either in the form of rings or creſcents, made of ſilver, bracelets, and rings for the ſmall of the leg; they wear theſe trinkets at their moſt ordinary occupations; leſs out of vanity than becauſe they are unacquainted with the uſe of caſkets or cabinets for keeping them. They alſo wear necklaces made of coloured glaſs beads, or cloves ſtrung on a cord of ſilk. The women, to add to their beauty, imprint on their face, neck, breaſt, and on almoſt every part of their body, repreſentations of flowers and other figures. The impreſſions are made with a piece of wood ſtuck full of needles; with the points of which they gently puncture the ſkin, and then lay it over with a blue-coloured ſubſtance or gunpowder pulveriſed, and the marks never wear out. This cuſtom, which is very ancient, and which has been practiſed by a variety of nations, in Turkey, over all Aſia, in the ſouthern parts of Europe, and perhaps over the whole globe, is, however, not general among the Mooriſh tribes. The Moors conſider their wives as ſlaves deſtined to labour. Except in the buſineſs of tillage, they are employed in every ſervile operation; nay, to the diſgrace of humanity, in ſome of the poorer quarters a woman is often ſeen yoked in a plough along with a mule, an aſs, or ſome other animal. When the Moors remove their douhars, all the men ſeat themſelves in a circle on the ground; and with their elbows reſting on their knees, paſs the time in converſation, while the women ſtrike the tents, fold them up into bundles, and place them on the backs of their camels or oxen. The old women are then each loaded with a parcel, and the young carry the children on their ſhoulders ſuſpended in a cloth girt round their bodies. In the more ſouthern parts, the women are likewiſe employed in the care of the horſes, in ſaddling and bridling them; the huſband is always a deſpot, iſſues his orders, and muſt be obeyed. The women travel without being veiled; they are accordingly ſun-burnt, and have no pretenſions to beauty. There are, however, ſome quarters where they put on a little rouge: they every where ſtain their feet, and the ends of their fingers, with an herb called *henna*, which gives them a deep ſaffron colour; a cuſtom that muſt be very ancient among the people of Aſia. Abu Becre dyed his eye-brows and beard with the ſame colour, and many of his ſucceſſors imitated him.

(5.) **Moors, funeral rites among the.** When any perſon dies, a certain number of women are hired for the purpoſe of lamentation; in the performance of which, nothing can be more grating to the ear, or more unpleaſant, than their frightful moans, or rather howlings: at the ſame time, theſe mercenary mourners beat their heads and breaſts, and tear their cheeks with their nails. The bodies are uſually buried a few hours after death. Previous to interment, the corpſe is waſhed very clean, and ſewed up in a ſhrowd, with the right hand under the head, which is pointed towards Mecca: it is carried on a bier ſupported upon men's ſhoulders, to the burying place, which is always, with great propriety, on the outſide of the town, for they never bury their dead in the moſques, or within the bounds of an inhabited place. The bier is accompanied by numbers of people, two a-breaſt, who walk very faſt, calling upon God and Mahomet, and ſinging hymns adapted to the occaſion. The grave is made very wide at the bottom and narrow at the top, and the body is depoſited without any other ceremony than ſinging and praying in the ſame manner as on their way to the grave. They have no tombs in this country, but long and plain ſtones; and it is frequently cuſtomary for the female friends of the departed to weep over their graves for ſeveral days after their funeral.

(6.) **Moors, hospitality of the.** The douhars diſperſed over the plains are always in the neighbourhood of ſome rivulet or ſpring, and they are a kind of inns for the reception of travellers. There is generally a tent erected for their uſe, if they have not brought one along with them. They are accommodated with poultry, milk, and eggs, and with whatever is neceſſary for their horſes. Inſtead of wood for fuel, they have the cow-dung, which, when mixed with charcoal, makes a very briſk fire. The ſalts that abound in the vegetables of warm countries give this dung a conſiſtence which it has not perhaps in northern regions. A guard is always ſet on the tents of travellers, eſpecially if they are Europeans, becauſe the opinion of their wealth might tempt the avidity of the Moors, who are naturally inclined to thieving. With reſpect to the roads, a very judicious policy is eſtabliſhed, which is adapted to the character of the Moors, and to their manner of life. The douhars are reſponſible for robberies committed in their neighbourhood, and in ſight of their tents: they are not only obliged to make reſtitution, but it gives the ſovereign a pretence for exacting a contribution proportioned to the abilities of the douhar. To temper the rigour of this law, they are reſponſible only for robberies committed during the day; thoſe that happen after ſun-ſet are not imputed to them, as they could neither ſee nor prevent them: on this account, people here travel only from ſun-riſing to ſun-ſetting.

(7.) **Moors, houses, furniture, &c. of the.** The Moors who inhabit the cities differ from the others only in having a little more urbanity and a more eaſy deportment. Though they have the ſame origin with thoſe of the plains, they affect to decline all intercourſe with them. Some writers, without any foundation, have given the name of *Arabs* to the inhabitants of the towns, and that of *Moors* to thoſe of the plains. But the greater part of the cities of Morocco are more ancient than the invaſion of the Arabs, who themſelves lived in tents. The houſes in moſt of the towns appear at a little diſtance like vaulted tombs in a church-yard; and the entrance into the beſt of them has but a mean appearance. The rooms are generally on the ground-floor, and whitened on the outſide. As the roofs are quite flat, they ſerve as *verandos*, where the Mooriſh women commonly ſit for the benefit of the air; and in ſome places it is poſſible to paſs nearly over the whole town without having occaſion to deſcend into the ſtreet. As the beſt apartments are all backwards, a ſtable, or perhaps ſomething worſe, is the place to which viſitors are firſt introduced. Upon entering the houſe, the ſtranger is either detained in this place or in the ſtreet till all the women are diſpatched out of the way; he is then allowed to enter a ſquare court, into which four narrow and long rooms open by means of large folding doors, which, as they have no windows, ſerve likewiſe to introduce light into the apartments. The court has generally in its centre a fountain; and if it is the houſe of a Moor of property, it is floored with blue and white chequered tiling. The doors are uſually painted of various colours in a chequered form, and the upper parts of them are frequently ornamented with very various carved work. None of the chambers have fire-places; and their victuals are always dreſſed in the court-yard in an earthen ſtove heated with charcoal. When the viſitor enters the room where he is received by the maſter of the houſe, he finds him ſitting croſs-legged and barefooted on a mattreſs, covered with fine white linen, and placed on the floor, or elſe on a common mat. This, with a narrow piece of carpeting, is in general the only furniture he will meet with in Mooriſh houſes, though they are not deſtitute of other ornaments. In ſome, he will find the walls decorated with looking-glaſſes of different ſizes; in others, watches and clocks in glaſs-caſes; and in ſome the apartments are hung with the ſkins of lions or tigers, or adorned with a diſplay of muſkets or ſabres. In the houſes of thoſe who live in the very firſt ſtyle, an European mahogany bedſtead, with one or two mattreſſes, covered with fine white linen, is ſometimes placed at each end of the room. Theſe, however, are only conſidered as ornaments, as the Moors always ſleep on a mattreſs or mat placed upon the floor, and covered only with their *haick* or perhaps a quilt. As the law of Mahomet ſtrictly proſcribes the uſe of pictures, this ſpecies of ornament finds no place in the houſes of the Moors. The wardrobe of the inhabitants of cities is but little different from that of thoſe who live in tents. Like the latter, they have a haick, and a hood, more or leſs fine, and have alſo a hood of coarſe European cloth of dark blue for the winter. What farther diſtinguiſhes them from the country Moors is, that they wear a ſhirt and linen drawers, and an upper garment of cotton in ſummer, and of cloth in winter, which they call a *caftan*. The white or blue hood, the purpoſe of which ſeems to be to guard againſt bad weather, and which is called *bernus*, is likewiſe a ceremonial part of dreſs; without which, together with ſabre or canjer (or dagger) worn in a bandelier, perſons of condition never appear before the emperor. Obliged as they are to conceal their riches, the Moors wear no jewels; very few have ſo much as a ring, a watch, or a ſilver ſnuff-box. They frequently carry a roſary in their hand, but without annexing any ideas of devotion to the practice, although they uſe it to recite the name of God a certain number of times in the day. After theſe momentary prayers they play with their roſaries much the ſame as the European ladies do with their fans.

(8.) MOORS, JEWS AMONG THE. The *Jews* were formerly very numerous in Morocco. After being proſcribed in Spain and Portugal, multitudes of them paſſed over, and ſpread themſelves through the towns and over the country. They affirm, that by the extent of the places aſſigned them to dwell in, it would appear there were more than 30,000 families, of whom at preſent there is ſcarcely a reſidue of one 12th; the remainder having changed their religion, ſunk under their ſufferings, or fled from the vexations they endured, and the arbitrary taxes impoſed upon them. The Jews poſſeſs neither lands nor gardens, nor can they enjoy their fruits in tranquillity: they muſt wear only black; and are obliged, when they paſs near moſques, or through the ſtreets in which there are ſanctuaries, to walk barefooted. The loweſt among the Moors imagines he has a right to mal-treat a Jew; nor dares the latter defend himſelf, becauſe the koran and the judge are always in favour of the Mahometan. Notwithſtanding this ſtate of oppreſſion, the Jews have many advantages over the Moors: they underſtand the ſpirit of trade better; they act as agents and brokers, and profit by their own cunning and the ignorance of the Moors. In their commercial bargains many of them buy up the commodities of the country to ſell again. Some have European correſpondents, and others are mechanics. More induſtrious, artful, and better informed than the Moors, the Jews are employed by the emperor in receiving the cuſtoms, coining the money, and in all affairs and intercourſe which the monarch has with the European merchants, as well as in all his negociations with the various European governments.

(9.) MOORS, LANGUAGE OF THE. The Moors of Morocco, as well as thoſe to the N. limits of Africa, ſpeak Arabic; but it is corrupted in proportion to the diſtance from Aſia, where it firſt took birth; the intermixture which has happened among the African nations, and the frequent tranſmigrations of the Moors, have occaſioned them to loſe the purity of the Arabic language; its pronunciation has been vitiated, the uſe of many words loſt, and other foreign words have been introduced without rendering it more copious; the pronunciation of the Africans, however, is ſofter to the ear and leſs guttural than that of the Egyptians. The language, when written, is in effect much the ſame at Morocco as at Cairo, except that there are letters and expreſſions among the Moors which differ from thoſe of the Oriental Arabs, who however, underſtand the Moors in converſation, notwithſtanding their vitiated pronunciation. They mutually read each other's writings with ſome difficulty. There is a very ſenſible difference among the Moors between the Arabic of the learned and the courtiers, and that ſpoken by the people in general; and this difference is felt ſtill more in the provinces of the S. or E. and among the Moors who live in the deſarts, where the Arabic is yet farther disfigured by a mixture of foreign tribes. The Brebes and the Sheilu, who appear to have had the ſame origin, for they preſerved the ſame dialect, ſpeak a language which the Moors do not underſtand, and which ſeems to have no analogy with that of the latter. It has been conjectured to be the Punic, or the Numidian; but theſe people write it in Arabic characters. The Brebes count the days of the week like the Moors, and both employ Arabic words. The Shellu enumerate the days after the ſame method, but in their own language. Both the Brebes and the Shellu denote the months of the year in the ſame manner as the Moors and Arabs, and date from the ſame era; viz. from the year of the Hegira. The Koran and books of prayer of the Brebes and Shellu are in Arabic; as well as their acts and title-deeds, which are written by their talbes or learned men.

(10.) **MOORS, MANUFACTURES AND TRADES AMONG THE.** The Mooriſh manufactures are—The haick, which is a long garment of white wool and cotton, or cotton and ſilk woven together, and is uſed by the Moors for covering their under dreſs when they go abroad, which they do by totally wrapping themſelves in it in a careleſs but eaſy manner; ſilk handkerchiefs of a particular kind, prepared only at Fez; ſilks chequered with cotton; carpeting, little inferior to that of Turkey; beautiful matting, made of the palmetto, or wild palm tree; paper of a coarſe kind; cordovan, commonly called *Morocco leather*; gunpowder of an inferior nature; and long-barrelled muſkets, made of Biſcay iron. The moors are unacquainted with the mode of caſting cannon; and therefore thoſe few which are now in the country are obtained from Europeans. The manufacture of glaſs is likewiſe unknown to them; as indeed they make great uſe of earthen ware, and have few or no windows to their houſes, this commodity may be of leſs importance to them. They make butter, by putting the milk into a goat ſkin, with its outward coat turned inwards, and ſhaking it till the butter collects on the ſides, when it is taken out for uſe. From this operation it is always full of hairs, and has an inſipid flavour. Their cheeſe conſiſts merely of curds hardened and dried, and has uniformly a diſagreeable taſte. The bread in ſome of the principal towns, particularly at Tangier and Salee, is remarkably good, but in many other places it is coarſe, black, and heavy. The Moors, agreeably to the Jewiſh cuſtom, cut the throats of all the animals they eat, at the ſame time turning their heads towards Mecca, in adoration of their prophet. After ſuffering them to bleed freely, they carefully waſh all the remaining blood away, and divide the meat into ſmall pieces, of about one or two lb. each. As they are unacquainted with pumps, and have few ſprings, it affords employment to a number of indigent people, who would probably be idle otherwiſe, to carry water in ſkins from the neareſt river or reſervoir, and ſell it to the inhabitants. From their being obliged to tar the ſkins to prevent them from leaking, the water is often rendered very unpleaſant. Their looms, forges, ploughs, carpenters tools, &c. are much upon the ſame conſtruction with the unimproved inſtruments of the ſame kind ſtill uſed in ſome parts of Europe, only more clumſily finiſhed. In their work they attend more to ſtrength than neatneſs; and like all ignorant people, they have no idea that what they do is capable of improvement. Indeed the Moors have undergone no very material change ſince the revolution in their arts and ſciences, which took place ſoon after their expulſion from Spain. Before that time, they were an enlightened people, at a time when the greater part of Europe was involved in ignorance and barbariſm; but, owing to the weakneſs and tyranny of their princes, they gradually ſunk into the very oppoſite extreme, and may now be conſidered as but a few degrees removed from a ſavage ſtate. They uſe no kind of wheel carriage; and therefore all their articles of burden are tranſported from one place to another on camels, mules, or aſſes. Their buildings, though not conſtructed on any principle of architecture, have at leaſt the merit of being very ſtrong and durable. The manner of preparing tabby, of which all their beſt edifices are formed, is the only remain of their ancient knowledge at preſent exiſting. It conſiſts of a mixture of mortar and very ſmall ſtones, beaten tight in a wooden caſe, and ſuffered to dry, when it forms a cement equal to the ſolid rock. There are always unaccountable inconſiſtencies in the arts of uncivilized nations. The apartments are, if poſſible, even more inconvenient than thoſe of their neighbours the Spaniards; yet the carved woodwork with which many of them are ornamented, is equal to any in Europe.

(11.) **MOORS, MARKETS AMONG THE.** To facilitate the exchange of neceſſaries, there is in the fields every day except Friday, which is a day of prayer, a public market in the different quarters of each province. The Moors of the neighbourhood aſſemble to ſell and buy cattle, corn, pulſe, dried fruits, carpets, haiquas, and in ſhort all the productions of the country. This market, which is called *Soc*, reſembles our fairs. The buſtle of the people who go and come, gives a better idea of the manner of life of the Moors than can be had in the cities. The Alcaides, who command in the neighbourhood, always attend theſe markets with ſoldiers to keep the peace; as it frequently happens that the grudges which theſe tribes harbour againſt one another break out upon ſuch occaſions into open violence. The diſſolution of the ſoc is always the preſage of ſome ſeditious ſquabble. The ſkirts of theſe markets are commonly occupied by merry Andrews, ſingers, dancers, and other buffoons, who make apes dance to amuſe the idle. On one ſide are barbers and ſurgeons, to whom the ſick are brought to be cured.

(12.) **MOORS, MARRIAGES, EDUCATION, &c. AMONG THE.** The Moors marry very young, many of their females not being more than 12 years of age at their nuptials. As Mahometans, their religion admits of polygamy to the extent of 4 wives, and as many concubines as they pleaſe;

but if we except the very opulent, the people ſeldom avail themſelves of this indulgence, as it intails on them a vaſt additional expenſe in houſekeeping, and in providing for a large family. In contracting marriage, the parents of both parties are the only agents; and the intended bride and bridegroom never ſee each other till the ceremony is performed. The marriage ſettlements are made before the cadi, and then the friends of the bride produce her portion, or if not, the huſband agrees to ſettle a certain ſum upon her in caſe he ſhould die, or divorce her on account of barrenneſs, or any other cauſe. The children of the wives have all an equal claim to the effects of the father and mother, but thoſe of the concubines can each only claim half a ſhare. When the marriage is finally agreed upon, the bride is kept at home 8 days, to receive her female friends, who pay congratulatory viſits every day. At the ſame time a talbe attends upon her, to converſe with her relative to the ſolemn engagement on which ſhe is about to enter; and he accompanies his admonitions with ſinging a pious hymn, adapted to the ſolemnity. The bridegroom receives viſits from his male friends in the morning, and in the evening rides through the town accompanied by them, ſome playing on hautboys and drums, others firing volleys of muſketry. In all their feſtivals, the diſcharge of muſketry indeed forms a principal part of the entertainment. Contrary to the European mode, which aims at firing with exactneſs, the Moors diſcharge their pieces as irregularly as poſſible, ſo as to have a continual ſucceſſion of reports for a few minutes. On the marriage day, the bride in the evening is put into a ſquare or octagonal cage, about 12 feet in circumference, which is covered with fine white linen, and ſometimes with gauzes and ſilks of various colours. In this vehicle, which is placed on a mule, ſhe is paraded round the ſtreets, accompanied by her relations and friends, ſome carrying lighted torches, others playing on the hautboys, and others firing volleys. In this manner ſhe is carried to the houſe of the bridegroom, who returns about the ſame time from performing ſimilar ceremonies. On her arrival, ſhe is placed in an apartment by herſelf, and her huſband is introduced to her alone for the firſt time, who finds her ſitting on a ſilk or velvet cuſhion, with a ſmall table before her, upon which are two wax candles lighted. Her ſhift, or ſhirt, hangs down like a train behind her, and over it is a ſilk or velvet robe with cloſe ſleeves, which at the breaſt and wriſts is embroidered with gold; this dreſs reaches ſomething lower than the calf of the leg. Round her head is tied a black ſilk ſcarf, which hangs behind as low as the ground. Thus attired, ſhe ſits with her hands over her eyes, when her huſband appears and receives her as his wife without any further ceremony: for the agreement made by the friends before the cadi, is the only ſpecific contract which is thought neceſſary. If the huſband ſhould have any reaſon to ſuſpect that his wife has not been ſtrictly virtuous, he may divorce her and take another. For ſome time after marriage, the family and the friends are engaged in much feaſting, and a variety of amuſement. It is uſually cuſtomary for the man to remain at home 8 days, and the woman 8 months after they are firſt married; and the wife may divorce her huſband, if he does not provide her with a proper ſubſiſtence. If he curſes her, he muſt pay her for the firſt offence 8 ducats; for the 2d a rich dreſs of ſtill greater value; and the 3d time ſhe may leave him entirely. He is then at liberty to marry again in two months. Women ſuffer but little inconvenience in this country from child-bearing: they are frequently up the next day, and go through all the duties of the houſe with the infant upon their backs. In celebrating the rite of circumciſion, the child is dreſſed very ſumptuouſly, and carried on a mule, or, if the parents are in poor circumſtances, on an aſs, accompanied with flags flying, and muſicians playing on hautboys and beating drums. In this manner they proceed to the moſque, where the ceremony is performed. Children, as ſoon as they can be made in the leaſt degree uſeful, are put to the various kinds of labour adapted to their age and ſtrength. Others, whoſe parents are in better circumſtances, are ſometimes ſent to ſchool; and thoſe who are intended for the church, uſually continue their ſtudies till they have nearly learnt the Koran by rote. In that caſe they are enrolled among the talbes, or learned men of the law; and upon leaving ſchool are paraded round the ſtreets on a horſe, accompanied by muſic and a large concourſe of people. The marriage ceremonies of the Moors that live in tents pretty much reſemble thoſe of the people that live in the cities. In the douhars they are generally moſt brilliant and gay; the ſtrangers that paſs along are invited, and made to contribute to the feaſt; but this is done more from politeneſs than from any mercenary motive. The tribes of the plain generally avoid mixing by marriage with one another: the prejudices that divide theſe people are commonly perpetuated; or, if they are partially healed, they never fail to revive upon trifling occaſions, ſuch as a ſtrayed camel, or the preference of a paſture or a well. Marriages have ſometimes taken place among them, that, ſo far from cementing their differences, have occaſioned the moſt tragical ſcenes. Huſbands have been known to murder their wives, and women their huſbands, to revenge national quarrels. Parents are not encumbered with their children, however numerous they may be, for they are very early employed in domeſtic affairs; they tend the flocks, they gather wood, and they aſſiſt in ploughing and reaping. In the evening, when they return from the field, all the children of the douhar aſſemble in a common tent, where the Iman, who himſelf can hardly ſpell, makes them read a few ſentences from the Koran written on boards, and inſtructs them in their religion by the light of a fire made of ſtraw, of buſhes, and cow-dung dried in the ſun. As the heat is very great in the inland parts of the country, children of both ſexes go quite naked till the age of nine or ten.

(13.) **Moors, mode of living, manners, &c. among the.** Perſonal cleanlineſs has been conſidered as one of thoſe circumſtances which ſerve to mark and determine the civilization of a people. It was in vain that Mahomet enjoined the frequency of ablution as a religious duty to the Moors. Their dreſs, which ſhould be white, is but ſeldom waſhed; and their whole appearance evinces that they perform this branch of their religious ceremonies in but a ſlovenly manner. With this degree of negligence as to their perſons, we may be juſtly ſurpriſed to find united a moſt ſcrupulous nicety in their habitations and apartments. They enter their chambers bare-footed, and cannot bear the ſlighteſt degree of contamination near the place where they are ſeated. This delicacy again is much confined to the inſides of their houſes. The ſtreets receive the whole of their rubbiſh and filth; and by theſe means the ground is ſo raiſed in moſt parts of the city of Morocco, that the new buildings ſtand conſiderably higher than the old. When a Moor receives his gueſts, he never riſes from his ſeat, but ſhakes hands, inquires after their health, and deſires them to ſit down, either on a carpet or a cuſhion placed on the floor for that purpoſe. Whatever be the time of day, tea is then brought in on a tea-board with ſhort feet. This is the higheſt compliment that can he offered by a Moor; for tea is a very expenſive and ſcarce article in Barbary, and is only drank by the rich and luxurious. Their manner of preparing it is by putting ſome green tea, a ſmall quantity of tanſey, the ſame portion of mint, and a large proportion of ſugar, into the tea-pot at the ſame time, and filling it up with boiling water. When theſe articles are infuſed a proper time, the fluid is then poured into remarkably ſmall cups of the beſt India-china, the ſmaller the more genteel, without milk; and, accompanied with ſome cakes or ſweet-meats, it is handed round to the company. From the great eſteem in which this beverage is held by the Moors, it is generally drank by very ſmall and ſlow ſips, that its flavour may be the longer enjoyed; and as they uſually drink a conſiderable quantity, this entertainment is ſeldom finiſhed in leſs time than two hours. Their other luxuries are ſnuff, of which they are uncommonly fond, and ſmoking tobacco, for which the greater part uſe wooden pipes about 4 feet long, with an earthen bowl; but the emperor and princes have the bowls made of ſolid gold. Inſtead of opium, which, from the heavy duty impoſed upon that article by the emperor, is too expenſive to be uſed by the Moors, they ſubſtitute the *achicha*, a ſpecies of flax. This they powder and infuſe in water in ſmall quantities. The Moors aſſert, that it produces agreeable ideas; but own, that when it is taken to exceſs it moſt powerfully intoxicates. To produce this effect, they likewiſe mix with their tobacco an herb named *khaf*, which, by ſmoking, occaſions all the enebriating effects of the *achicha*. The uſe of ſpirits as well as wine is ſtrictly forbidden by the Koran; there are, however, very few among the Moors who do not embrace every private opportunity of drinking both to exceſs. With reſpect to eating, the Moors are remarkably regular. Very ſoon after day-break they take breakfaſt, which is generally a compoſition of flour and water boiled thin, with an herb which gives it a yellow tinge. The male part of the family eat in one apartment and the female in another. The children are not permitted to eat with their parents, but take their meals with the ſervants; indeed in moſt other reſpects they are treated as ſervants by their parents. The meſs is put into an earthen bowl, brought in upon a round wooden tray, and placed in the centre of the gueſts, who ſit croſs-legged on a mat or on the floor, and form a circle for the purpoſe. Having waſhed themſelves, each perſon with his ſpoon attacks vigorouſly the bowl, while they diverſify the entertainment by fruit or bread. At twelve o'clock they dine, performing the ſame ceremonies as at breakfaſt. For dinner, from the emperor down to the peaſant, their diſh is univerſally *cooſcooſoo*. (See § 3, ii.) The diſh is brought in upon a round tray and placed on the floor, round which the family ſit as at breakfaſt, and with their fingers commit a violent aſſault on its contents: they are at the ſame time, however, attended by a ſlave or domeſtic, who preſents them with water and a towel occaſionally to waſh their hands. From the want of the ſimple and convenient invention of knives and forks, it is not uncommon in this country to ſee three or four people pulling to pieces the ſame piece of meat, and afterwards with their fingers ſtirring up the paſte or *cooſcooſoo*, of which they often take a whole handful at once into their mouth. At ſun-ſet they ſup upon the ſame diſh; and indeed ſupper is their principal meal. Such is the general mode of living among the principal people in towns. There are conſiderable multitudes, however, who do not fare ſo well, but are obliged to content themſelves with a little bread and fruit inſtead of animal food, and to ſleep in the open ſtreets. This kind of exiſtence ſeems ill calculated to endure even in an inactive ſtate; far more ſevere muſt it therefore be to thoſe who exerciſe the laborious employment of couriers in this country, who travel on foot a journey of 300 or 400 miles at the rate of between 30 or 40 miles a-day, without taking any other nouriſhment than a little bread, a few figs, and ſome water, and who have no better ſhelter at night than a tree. It is wonderful with what alacrity and perſeverance theſe people perform the moſt fatiguing journeys at all ſeaſons. There is a regular company of them in every town, who are ready to be diſpatched at a moment's warning to any part of the country. They conſtitute in this empire the only mode of conveyance for all public and private diſpatches; and as they are well known in the place to which they belong, they are very punctual in delivering every thing that is put into their hands. From their ſteady pace in travelling, at the rate of about 4 miles an hour, and from their being able to paſs over parts which, from the mountainous ſtate of the country, and from the want of good roads, perſons on horſeback would find inacceſſible, they are indeed by far the moſt expeditious meſſengers that could be employed. As none but the very vulgar go on foot in this country, mules, for the purpoſe of viſiting, are conſidered as more genteel than horſes; and the greateſt pride of a Moor is to have ſuch as walk remarkably faſt, and to keep his footmen, of which the number is proportionable to the rank and conſequence of the maſter, on a continued run. As the Moors are not fond of admitting men into their houſes except upon particular occaſions, if the weather is fine they place a mat, and ſometimes a carpet, on the ground before their door, ſeat themſelves upon it croſs-legged, and receive their friends, who form a circle, ſitting in the ſame manner, with their attendants on the outſide of the groupe. Upon theſe occaſions they either drink tea or ſmoke and converſe. The ſtreets are ſometimes crowded with parties of this kind; ſome engaged in playing at an inferior kind of cheſs or drafts, at which they are very expert; but the majority in converſation. The people of this country, indeed, are ſo decidedly averſe to ſtanding up, or walking about, that if only two or three people meet, they ſquat themſelves down in the firſt clean place they can find, if the converſation is to hold but for a few minutes. The manner of ſalutation among the Moors is, when two equals meet, by a quick motion they ſhake hands, and afterwards kiſs each other's hand. When an inferior meets a ſuperior, ſuch as an officer of rank, a judge, or governor, he kiſſes that part of his haick which covers the arm; and ſometimes, as a higher mark of reſpect, he will kiſs his feet. But the compliment due to the emperor, or any of the princes of the blood, is to take off the cap or turban, and to proſtrate the head to the ground. When two particular friends or relations meet, they anxiouſly embrace and kiſs each other's faces and beards for a few minutes, make a number of enquiries about the health of each party, as well as that of their families, but ſeldom allow time for a reply.

(14.) MOORS, MOSQUES, AND RELIGIOUS CEREMONIES OF THE. Their moſques or places of public worſhip are uſually large ſquare buildings, compoſed of the ſame materials as the houſes. The building conſiſts of broad and lofty piazzas, opening into a ſquare court, in a manner in ſome degree ſimilar to the Royal Exchange of London. In the centre of the court is a large fountain, and a ſmall ſtream ſurrounds the piazzas, where the Moors perform the ceremony of ablution. The court and piazzas are floored with blue and white chequered tiling, and the latter are covered with matting, upon which the Moors kneel while repeating their prayers. In the moſt conſpicuous part of the moſque, fronting the eaſt, ſtands a kind of pulpit, where the *talbe* or prieſt occaſionally preaches. The Moors always enter this place of worſhip bare-footed, leaving their ſlippers at the door. On the top of the moſque is a ſquare ſteeple with a flag-ſtaff, whither at ſtated hours the talbe aſcends, hoiſts a white flag, and calls the people to prayers, for they have no bells. From this high ſituation the voice is heard at a conſiderable diſtance; and the talbes have a monotonous mode of enunciation, the voice ſinking at the end of every ſhort ſentence, which in ſome meaſure reſembles the ſound of a bell. The moment the flag is diſplayed, every perſon forſakes his employment, and goes to prayers. If they are near a moſque, they perform their devotions within it, otherwiſe immediately on the ſpot where they happen to be, and always with their faces towards the eaſt, in honour of their prophet Mahomet, who was buried at Medina. The prayer which is generally repeated on theſe occaſions, is a chapter from the Koran, acknowledging the goodneſs of God and Mahomet; and it is accompanied with various geſtures, ſuch as lifting the hands above the head, bowing twice, performing two genuflections, bowing again twice, and kiſſing the ground. The whole of this ceremony they repeat three times. Their ſabbath is on our Friday, and commences from ſix o'clock the preceding evening. On this day they uſe a blue flag inſtead of the white one. As it has been propheſied that they are to be conquered by the Chriſtians on the ſabbath day, the gates of all the towns and of the emperor's palaces are ſhut when at divine ſervice on that day, in order to avoid being ſurpriſed during that period. Their talbes are not diſtinguiſhed by any particular dreſs. The Moors have three ſolemn devotional periods in the year. The firſt, which is named *Aid de Cabir*, is held in commemoration of the birth of Mahomet. It continues 7 days; during which period, every perſon who can afford the expence kills a ſheep as a ſacrifice, and divides it among his friends. The 2d is the FAMADAM. This is held at the ſeaſon when Mahomet diſappeared in his flight from Mecca to Medina. Every man at that period muſt faſt (that is, abſtain from animal food from ſun-riſe to ſun-ſet each day) for 30 days; at the expiration of which time a feaſt takes place, and continues a week. The 3d is named *Llaſhore*, and is a day ſet apart by Mahomet for every perſon to compute the value of his property, for the payment of *zakat*, that is, one 10th of their income to the poor, and other pious uſes. Although this feaſt only laſts a ſingle day, it is celebrated with far greater magnificence than either of the others. The Moors compute the time by lunar months, and compute the days of the week by the 1ſt, 2d, 3d, &c. beginning from our Sunday. They uſe a common reed for writing, and begin their MSS. from right to left.

(15.) MOORS, MUSIC, POETRY, &c. OF THE. Like all barbarous nations, the Moors are paſſionately fond of muſic, and ſome few have a taſte for poetry. Their ſlow airs, for want of that variety which is introduced when the ſcience has attained a degree of perfection, have a very melancholy ſameneſs; but ſome of their quick tunes are beautiful and ſimple, and partake in ſome degree of the characteriſtic melody of the Scotch airs. The poetry of their ſongs, the conſtant ſubject of which is love, though there are few nations perhaps who are leſs ſenſible of that paſſion, has certainly leſs merit than the muſic. Their inſtruments are a kind of hautboy, which differs from ours only in having no keys; the mandoline, which they have learnt to play upon from their neighbours the Spaniards; another inſtrument, bearing ſome reſemblance to a violin, and played upon in a ſimilar manner, but with only two ſtrings; the large drum, the common pipe, and the tabor. Theſe united, and accompanied with a certain number of voices, upon many occaſions form a band, though ſolo muſic is more common in this unſocial country. Upon all days of rejoicing, this kind of muſic, repeated volleys of muſketry, either by men on horſeback or on foot, and in the evening a grand attack upon the cooſcooſoo, conſtitute the principal part of the public entertainments.

(16.) MOORS, NEGROES AMONG THE. The

Negroes, who conſtitute a large proportion of the emperor's ſubjects, are better formed than the Moors; and as they are more lively, daring, and active, are entruſted with an important ſhare in the executive part of government. They conſtitute the moſt conſiderable part of the emperor's army, and are generally appointed to the government of provinces and towns. This circumſtance naturally creates a jealouſy between them and the Moors, the latter conſidering the negroes as uſurpers of a power which they have no right to aſſume. Beſides thoſe negroes which form the emperor's army, there are many others in the country, who either are or have been ſlaves to private Moors; every Moor of conſequence, indeed, has his proportion of them in his ſervice. To the diſgrace of Europe, the Moors treat their ſlaves with humanity, employing them in looking after their gardens, and in domeſtic duties of their houſes. They allow them to marry among themſelves; and after a certain number of years, ſpontaneouſly preſent them with the invaluable boon of liberty. They are ſoon initiated in the Mahometan perſuaſion, though they ſometimes intermix with it a few of their original ſuperſtitious cuſtoms. In every other reſpect they copy the dreſs and manners of the Moors.

(17.) **MOORS, RECREATIONS OF THE.** The Moors have in general but few amuſements; the ſedentary life they lead in cities is little varied, except by the care they take of their gardens, which are rather kept for profit than pleaſure. Moſt of theſe are planted with orange and lemon trees and cedars, in rows, in ſuch great quantities, that the appearance is rather that of a foreſt than a garden. The Moors ſometimes, though rarely, have muſic in theſe retreats: a ſtate of ſlavery ill agrees with the love of pleaſure: the people of Fez alone, either from a difference in education, or becauſe their organs and ſenſibility are more delicate, make muſic a part of their amuſements. There are not in Morocco, as in Turkey, public coffee-houſes, where people meet to inquire the news of the day; but inſtead of theſe, the Moors go to the barbers ſhops, which in all countries ſeem to be the rendezvous of newſmongers. Theſe ſhops are ſurrounded by benches, on which the cuſtomer, the inquiſitive, and the idle, ſeat themſelves; and when there are no places vacant, they crouch on the ground, like monkeys. Showmen and dancers come often into the towns; round whom the people aſſemble, and partake of the amuſement for a trifle. There are alſo a kind of *wandering hiſtorians:* the vulgar, who cannot read, and who everywhere are eager to hear extraordinary relations, are the more aſſiduous in attending theſe narrators, as want of more extenſive information prevents the tale-teller remaining above a week in a place. A common diverſion in the towns where there are ſoldiers, as well as in the country, is what the Moors call the game of gunpowder; a kind of military exerciſe that is the more pleaſing to theſe people, as, by the nature of their government, they all are, or are liable to become, ſoldiers, therefore all have arms and horſes. By exploſions of powder, too, they manifeſt their feſtivity on their holidays. Their game of gunpowder conſiſts in two bodies of horſe, each at a diſtance from the other, galloping in ſucceſſive parties of four and four, and firing their pieces charged with powder. Their chief art is in galloping up to the oppoſite detachment, ſuddenly ſtopping, firing their muſkets, facing about, charging, and returning to the attack; all which manœuvres are imitated by their opponents. The Moors take great pleaſure in this amuſement, which is only an imitation of their military evolutions. The common topics for converſation among the Moors, are the occurrences of the place, religion, their women, but above all their horſes. This laſt topic, indeed, appears to occupy by far the greateſt portion of their attention. Theſe animals are ſeldom kept in ſtables in Morocco. They are watered and fed only once a day, the former at one o'clock at noon, and the latter at ſun-ſet; and the only one mode which they uſe to clean them is by waſhing them all over in a river two or three times a week, and ſuffering them to dry themſelves. Notwithſtanding the attachment which the Moors manifeſt to their horſes, they moſt certainly uſe them with great cruelty. Their higheſt pleaſure, and one of their firſt accompliſhments, is, by means of long and ſharp ſpurs, to make the horſe go full ſpeed, and then to ſtop him inſtantaneouſly; and in this they certainly manifeſt uncommon dexterity. The iron-work of their bridles is ſo conſtructed, that, by its preſſure on the horſe's tongue and lower jaw, with the leaſt exertion of the rider, it fills his mouth full of blood; and if not uſed with the utmoſt caution, throws him inevitably on his back. The bridle has only a ſingle rein, which is ſo very long, that it ſerves the purpoſe of both whip and bridle. The Mooriſh ſaddle is in ſome degree ſimilar to the Spaniſh, but the pummel is ſtill higher and more peaked. The ſtirrups, in which they ride very ſhort, are ſo formed as to cover the whole of the foot. They either plate or gild them, according to the dignity, opulence, or fancy of the poſſeſſor. Their ſaddles, which are covered with red woollen cloth, or, if belonging to a perſon of conſequence, with red ſatin or damaſk, are faſtened with a ſtrong girth round the body, in the European ſtyle, and another round the ſhoulders. The Moors frequently amuſe themſelves by riding with the utmoſt apparent violence againſt a wall; and a ſtranger would conceive it impoſſible for them to avoid being daſhed to pieces, when, juſt as the horſe's head touches the wall, they ſtop him with the utmoſt accuracy.

(18.) **MOORS, RELIGION OF THE.** The Moors are Mahommedans, of the ſect of Ali, and have a mufti or high prieſt, who is alſo the ſupreme civil magiſtrate, and the laſt reſort in all cauſes eccleſiaſtical and civil. They have a great veneration for their hermits, and for idiots and madmen; as well as for thoſe who by their tricks have got the reputation of wizzards; all of whom they look upon as inſpired, and not only honour as ſaints while they live, but build tombs and chapels over them when dead; which places are not only religiouſly viſited by their devotees far and near, but are eſteemed inviolable ſanctuaries for all ſorts of criminals, except in caſes of treaſon. Notwithſtanding the natives are zealous Mahommedans, they allow foreigners the free and open profeſſion of their religion, and their very ſlaves have their prieſts and chapels in the capital; though the Chriſtian ſlaves are here treated with the utmoſt cruelty.

(19.) MOORS, RENEGADOES AMONG THE. Among the inhabitants of Morocco there is a claſs called *Renegadoes*, or foreigners, who have renounced their religion for the faith of Mahomet. Of theſe there are a great number who have been originally Jews: they are held in little eſtimation by the Moors, and would be held in abhorrence by the Jews, if they durſt freely declare their averſion. The families of theſe apoſtates are called *Toornadis*: not having at any time married with the Moors, they ſtill preſerve their ancient characteriſtics, and are known almoſt at ſight to be the progeny of thoſe who formerly embraced the Mahometan religion. The Chriſtian renegadoes are but few, and generally are fugitive peculators of Spain, or men fallen from power, who, becauſe of their miſconduct, or in deſpair, quit one unfortunate ſituation for another much more deplorable.

(20.) MOORS, STATE OF SCIENCE AMONG THE. The Moors, who derive their language and religion from the Arabs, ſeem not in any manner to have participated of their knowledge. United and confounded as thoſe of Morocco have been with the Moors of Spain, the latter of whom cultivated the arts, and gave birth to AVERROES, and many other great men, the Moors of this empire have preſerved no traces of the genius of their anceſtors. They have no conception of the ſpeculative ſciences. Education conſiſts merely in learning to read and write; and as the revenues of the learned are derived from theſe talents, the prieſts and talbes among them are the ſole depoſitories of this knowledge. The children of the Moors are taught in their ſchools to read and repeat leſſons ſelected from the Koran, which for the ſake of economy are written upon ſmall boards. Theſe leſſons being once learned, the ſcholar is ſuppoſed to have obtained ſufficient knowledge to leave ſchool: on this occaſion he rides on horſeback through the city, followed by his comrades, who ſing his praiſes: this to him is a day of triumph, to the ſcholars an incitement to emulation, a feſtival for the maſter, and a day of expenſe for the parents; for in all countries, wherever there are feſtivals and proceſſions, there alſo are eating and drinking. At Fez there is ſome ſmall degree more of inſtruction to be obtained in the ſchools; and the Moors who are a little wealthy ſend their children there to have them inſtructed in the Arabic language, and in the religion and laws of their country. Here ſome of them alſo acquire a little taſte for poetry. The Moors who formerly inhabited Spain gave great application to phyſic and aſtronomy; and they have left MSS. behind them, which ſtill remain monuments of their genius. The modern Moors are infinitely degenerate; they have not the leaſt inclination to the ſtudy of ſcience: they know the properties of ſome ſimples; but as they do not proceed upon principle, and are ignorant of the cauſes and effects of diſeaſes, they generally make a wrong application of their remedies. Their moſt uſual phyſicians are their talbes, their ſakirs, and their ſaints, in whom they place a ſuperſtitious confidence. Aſtronomy is almoſt entirely unknown to the Moors; for though they wander from place to place, there are few among them who have a knowledge of the motion of the heavens, or who are capable from principle to direct their own courſe by obſerving that of the ſtars. They are therefore wholly unable to calculate eclipſes, which they always interpret to portend evil. Superſtitious people, indeed, have everywhere ſuppoſed eclipſes were ſent to preſage ſome calamity. The Moors being unable to reaſon on the cauſes of ſuch an appearance, imagine the ſun or the moon are in the power of a dragon that ſwallows them; and they offer up prayers that theſe luminaries may be delivered from an enemy ſo cruel and voracious. Notwithſtanding the Moors have occupied themſelves little in the ſtudy of aſtronomy, they have been eager after aſtrology. This imaginary ſcience, which made ſo rapid a progreſs at Rome, in deſpite of the edicts of the emperors, may be conceived to make ſtill greater advances among a people wholly ſtupid and ignorant, and ever agitated by the dread of preſent evils, or the hope of a more happy futurity. Magic, the companion of aſtrology, is particularly ſtudied by the talbes in the ſouthern parts, who ſucceſsfully uſe it in impoſing upon Mooriſh credulity with ſtrange dreams, and ambiguous forebodings and propheſies. In ſhort, arts and ſciences ſeem to be almoſt unknown in Morocco; or if at all cultivated, it is only by the Jews, who indeed are the only induſtrious and ingenious people in the country. The Moors in general may be conſidered as exiſting in the paſtoral ſtate, following only a few mechanical trades, and leaving every thing that requires invention to the Jews, who have likewiſe the principal management of their commercial and pecuniary matters; and even thoſe few of the Moors who are merchants, are obliged to have Jew agents, to tranſact their buſineſs.

(21.) MOORS, TEMPER AND DISPOSITION OF THE. The Moors are naturally of a grave and penſive diſpoſition, fervid in profeſſions of friendſhip, but very inſincere in their attachments. They have no curioſity, no thirſt of knowledge; an indolent habit, united to the want of mental cultivation, renders them perhaps even more callous than other unenlightened people to every delicate ſenſation; and they require more than ordinary excitement to render them ſenſible of pleaſure or of pain. This languor of ſentiment is, however, unaccompanied with the ſmalleſt ſpark of courage or fortitude. When in adverſity, they manifeſt the moſt abject ſubmiſſion to their ſuperiors; and in proſperity their tyranny and pride are inſupportable. They frequently ſmile, but ſeldom are heard to laugh loud. The moſt infallible mark of internal tranquillity and enjoyment is when they amuſe themſelves with ſtroking or playing with their beard. When rouſed by reſentment, their diſputes rarely proceed further than violently to abuſe each other in the moſt opprobrious language. They never fight or box with their fiſts like the Engliſh commonalty; but when a quarrel proceeds to great extremities, they collar each other, and ſometimes terminate a diſpute by aſſaſſination.

(22.) MOORS,

(12.) **Moors, women, female customs, &c. among the.** The Mooriſh women ſeldom leave the houſe, and when they do are always veiled. The old very carefully hide their faces, but the young and handſome are ſomewhat more indulgent, at leaſt towards foreigners, for they are exceedingly cautious with the Moors. Being veiled, their huſbands do not know them in the ſtreet, and it is even unpolite to endeavour to ſee the faces of the women who paſs. There are very fat women among the Moors, eſpecially up the country. As females in warm countries ſooner arrive at puberty, they are alſo ſooner old. They are not in general very reſerved; and licentiouſneſs is leſs reſtrained, though its diſorderly pleaſures incur its attendant pains; but the diſeaſe attending illicit amours is leſs poiſonous, and ſlower in its operations, than in Europe, becauſe of the heat of the climate, and the great temperance in their mode of living. The women of the ſouth are in general the handſomeſt; and are ſo reſerved, or ſo guarded, that their very relations do not enter their houſes. Yet ſo contradictory are their cuſtoms, that there are tribes in theſe provinces, among whom it is held to be an act of hoſpitality to preſent a woman to a traveller. The Mooriſh women who live in cities are more addicted to finery in dreſs than thoſe of the country; but as they generally leave the houſe only one day in the week, they ſeldom dreſs themſelves. Not allowed to receive male viſitors, they remain in their houſes employed by their families, and ſo totally in diſhabille, that they often wear only a ſhift, with a coarſer one over it, tied round their waiſt, with their hair plaited, and often without a cap. When dreſſed, they wear a fine linen ſhift, the boſom embroidered with gold; a rich caftan of cloth, ſtuff, or velvet, worked in gold; and one or two folds of gauze, ſtreaked with gold and ſilk, round the head, and tied behind, ſo as that the fringes, intermingled with their treſſes, deſcend as low as the waiſt; to which ſome add a ribband of about two inches broad, worked in gold or pearls, that encircles the forehead in form of a diadem. Their caftan is bound round their waiſt by a crimſon velvet girdle, embroidered in gold, with a buckle of gold or ſilver, or a girdle of tamboured ſtuff, manufactured at Fez. The women have yellow ſlippers, and a kind of ſtockings of fine cloth, ſomewhat large, tied below the knee and at the ankle, over which it falls in folds. Theſe ſtockings are leſs calculated to ſhow what we call a handſome leg, than to make it appear thick; for to be fat is one of the rules of beauty among the Mooriſh women. To obtain this quality, they take infinite pains, feed when they become thin on a diet ſomewhat like forced-meat balls, a certain quantity of which is given them daily: and, in fine, the ſame care is taken among the Moors to fatten young women, as in Europe to fatten fowls. The reaſon of a cuſtom like this may be found in the nature of the climate and the quality of the aliments, which make the people naturally meagre. The Moors preſent their wives with jewels of gold, ſilver, or pearl, but very few wear precious ſtones. They have rings in ſilver or gold; alſo ear-rings in the form of a creſcent, five inches in circumference, and as thick as the end of the little finger. They firſt pierce their ears, and introduce a ſmall roll of paper, which they daily increaſe in thickneſs, till at length they inſert the kernel of the date, which is equal in ſize to the ear-ring. They wear bracelets in gold and ſolid ſilver, and ſilver rings at the bottom of the legs, ſome of them conſiderably heavy. The uſe of white paint is unknown among the Mooriſh women, and that of red but little. It is much more common to ſee them dye their eye-brows and eye-laſhes, which dye does not add to the beauty of the countenance, but conſiderably to the fire of the eyes. They trace regular features with henna, of a ſaffron colour, on their feet, the palm of the hand, and the tip of their fingers. On their viſiting day they wrap themſelves in a clean fine haick, which comes over the head, and ſurrounds the face ſo as to let them ſee without being ſeen. When they travel, they wear ſtraw hats to keep off the ſun; and in ſome parts of the empire the women wear hats on their viſits; which is a faſhion peculiar to the tribes coming from the ſouth, who have preſerved their cuſtoms; for the Moors do not change modes they have once adopted.

(II.) **Moors**, in the Iſle of Man, thoſe who ſummon the courts for the ſeveral ſheadings; ſuch as the lord's bailiffs. The office is ſimilar to that of bailiff of the hundred.

MOORSHEDABAD, a large city of Indoſtan, in Bengal, 10 miles from the Ganges, formerly the capital of the Bengal provinces. It lies 100 miles N. of Calcutta, and 118 SE. of Patna. Lon. 88. 28. E. Lat. 24. 15. N.

* **MOORSTONE.** *n. ſ.* A ſpecies of granite.—The third ſtratum is of great rocks of *moorſtone* and ſandy earth. *Woodward on Foſſils.*

MOORSTOWN, a town of New Jerſey, 8 miles S. of Burlington.

* **MOORY.** *adj.* [from *moor.*] Marſhy; fenny; watery.—

The duſt the fields and paſtures covers,
As when thick miſts ariſe from *moory* vales.
Fairfax.

—In Eſſex, *moory* land is thought the moſt proper. *Mortimer.*

(1.) * **MOOSE.** *n. ſ.* The large American deer; the biggeſt of the ſpecies of deer.

(2.) **Moose**, or **Elk**. See **Cervus**, § I. N° i. 1.

(3.) **Moose**, in geography, or **Moose River**, a river of Canada, which riſes from Lake Miſſinabe, near the Michipicoton, runs NE. about 12 miles, receives many additional ſtreams, and falls into the SE. part of James's Bay.

(4.) **Moose**, a river of New Hampſhire, which runs NE. from White Mountains into the Amariſcoggin.

(5.) **Moose Island**, an iſland on the coaſt of Maine, in the mouth of the Schoodick.

(6.) **Moose Lake**, } a large lake of Maine, in
(6.) **Moose Pond**, or } Lincoln county, which
MOOSEHEAD, } gives riſe to the E.
branch of the Kennebeck.

MOOSEHILLOCK, the higheſt mountain of New Hampſhire, except the White Mountains, formerly much frequented by mooſe deer. Its top is ſometimes covered with ſnow ſo late as the 31ſt of Auguſt.

* *To* MOOT. *v. a.* [from *motian*, *mot*, *gemot*, meeting together, Saxon; or perhaps, as it is a law term, from *mot*, Fr.] To plead a mock cauſe; to ſtate a point of law by way of exerciſe, as was commonly done in the inns of court at appointed times.

Moot. *adj.* difficult or diſputable; *e. g.*

(1.) * Moot case, or point. A point or caſe unſettled and diſputable, ſuch as may properly afford a topick of diſputation.—

In this *moot caſe* your judgment to refuſe,
Is preſent death. *Dryden's Juvenal.*

—Would you not think him crack'd, who would require another to make an argument on a *moot point*, who underſtands nothing of our laws? *Locke on Education.*—Let us drop both our pretences; for I believe it is a *moot point*, whether I am more likely to make a maſter Bull, or you a maſter Strutt. *Arbuthnot's John Bull.*

(2.) *A* Moot case is a difficult caſe, argued by the young barriſters and ſtudents at the inns of court, by way of exerciſe, to qualify them for practice, and to defend the cauſes of their clients. This, which is called *mooting*, is the chief exerciſe of the inns of court. Particular times are appointed for the arguing moot caſes: the place where this exerciſe is performed was anciently called moot-hall; and there is a bailiff, or ſurveyor of the moots, annually choſen by the bench, to appoint the moot-men for the inns of chancery, and to keep an account of the performance of exerciſes.

MOOTAPILLY, or Mudapilli, a town of Indoſtan, in Guntoor, on the coaſt of Coromandel, 150 miles N. of Madras.

* MOOTED. *adj.* Plucked up by the root.

* MOOTER. *n. ſ.* [from *moot.*] A diſputer of moot points.

Moot-hall. See Moot, § 2.

* MOP. *n. ſ.* [*moppa*, Welſh; *mappa*, Latin.] 1. Pieces of cloth, or locks of wool, fixed to a long handle, with which maids clean the floors.—

Such is that ſprinkling which ſome careleſs quean
Flirts on you from her *mop*, but not ſo clean.
You fly, invoke the gods; then turning, ſtop
To rail; ſhe ſinging ſtill whirls on her *mop*.
Swift.

2. [Perhaps corrupted from *mock.*] A wry mouth made in contempt.—

Each one tripping on his toe
Will be here with *mop* and mow. *Shak. Tempeſt.*

(1.) * *To* Mop. *v. a.* [from the noun.] To rub with a mop.

(2.) * *To* Mop. *v. n.* [from *mock.*] To make wry mouths in contempt.—Five fiends have been in poor Tom at once; of luſt, as Obidicut; Hobbididen, prince of dumbneſs; Mahu, of ſtealing; Mohu, of murder; Flibbertigibbet, of *mopping* and mowing, who ſince poſſeſſes chamber-maids. *Shak.*—An aſs fell a *mopping* and braying at a lion. *L'Eſtrange.*

(1.) * *To* MOPE. *v. n.* [Of this word I cannot find a probable etymology.] To be ſtupid; to drowſe; to be in a conſtant day-dream; to be ſpiritleſs, unactive and inattentive; to be ſtupid and delirious.—What a wretched and peeviſh fellow is this king of England, to *mope* with his fat-brain'd followers. *Shak.*—

Eyes without feeling, feeling without ſight,
Ears without hands or eyes, ſmelling ſans all,
Or but a ſickly part of one true ſenſe
Could not ſo *mope*. *Shak. Haml*

Ev'n in a dream, were we divided from them
And were brought *moping* hither. *Shak. Temp*

Inteſtine ſtone, and ulcer, cholick pangs,
Demoniack phrenſy, *moping* melancholy,
And moon-ſtruck madneſs. *Milton's Par. Loſ*

Care only wakes, and *moping* penſiveneſs;
With meagre diſcontented looks they ſit. *Rowe*

(2.) * *To* Mope. *v. a.* To make ſpiritleſs; t deprive of natural powers.—The young thief too the old man to be *moped*. *L'Eſtrange.*—Severity breaks the mind; and then in the place of a diſorderly young fellow, you have a low-ſpirited *moped* creature. *Locke on Education.*

* MOPE-EYED. *adj.* Blind of one eye. *Ainſ.*

MOPENDA, a prov. of Africa, in Anziko.

MOPH. See Memphis.

MOPPET. } *n. ſ.* [perhaps from *mop.*] A puppet made of rags, as a mop is
MOPSEY. } made; a fondling name for a girl.—

Our ſovereign lady: made for a queen?
With a globe in one hand, and a ſceptre in t'other?
A very pretty *moppet!* *Dryden's Span. Fryar.*

(1.) MOPSUS, in fabulous hiſtory, a celebrated prophet, ſon of Apollo, by Manto, the daughter of Tireſias, who flouriſhed about the time of the Trojan war. After death he was ranked among the gods, and had an oracle at Malia, celebrated for the true and deciſive anſwers which it gave.

(2.) Mopsus, the ſon of Ampyx and Chloris, born at Titareſſa in Theſſaly. He was the prophet and ſoothſayer of the Argonauts, and died at his return from Colchis by the bite of a a ſerpent in Libya. Jaſon erected a monument to him on the ſea-ſhore, where afterwards Africanus built a temple where he gave oracles. He has often been confounded with the ſon of Manto, as their profeſſions and their names were the ſame.

* MOPUS. *n. ſ.* [A cant word from *mope.*] A drone; a dreamer.—

I'm grown a mere *mopus;* no company comes
But a rabble of tenants. *Swift's Miſcel.*

(1.) MOR, a town of Arabia, in Hedsjas.

(2.) Mor, an iſland of Denmark, in the Gulf of Linfurt, 16 miles long and 6 broad; containing a town and ſeveral villages.

(1.) MORA, a town of Portugal, in Alentejo.

(2.) Mora, a town of Spain, in New Caſtile.

MORABEL, a town of Ceylon.

MORABIN, James, a learned French author, who publiſhed a life of Cicero, and tranſlated ſeveral of his works, as well as thoſe of Boetius. He died at Paris in 1762.

MORACA, a river of European Turkey, which runs into the Lake Scutari, in Albania.

MORÆA, in botany, a genus of the monogynia order, belonging to the triandria claſs of plants; and in the natural method ranking under the 6th order, *Enſatæ.* The corolla is hexapetalous; the three interior petals patent, the reſt like thoſe of the iris.

MORAI, the name given at Otaheite to the burying-grounds, which are alſo places of worſhip. A morai is a pile of ſtone raiſed pyramidically upon an oblong baſe or ſquare 267 feet long and 87 wide. On each ſide is a flight of ſteps; thoſe at the ſides being broader than thoſe at the ends; ſo that it terminates not in a ſquare of the ſame figure with the baſe, but in a ridge like the roof of a houſe. There are 11 of theſe ſteps to one of theſe morais, each of which is 4 feet high, ſo that the height of the pile is 44 feet; each ſtep is formed of one courſe of white coral ſtone, which is neatly ſquared and poliſhed; the reſt of the maſs (for there is no hollow within) conſiſts of round pebbles, which from the regularity of their figure ſeem to have been wrought. The foundation is of rock-ſtones, which are alſo ſquared. In the middle of the top ſtands an image of a bird carved in wood, and near it the broken one of a fiſh carved in ſtone. The whole of this pyramid makes part of one ſide of a ſpacious area or ſquare 360 feet by 354, which is walled in with ſtone, and paved with flat ſtones in its whole extent. About 100 yards to the W. of this building is another paved area or court, in which are ſeveral ſmall ſtages raiſed on wooden pillars about 7 feet high, which are called by the Indians *ewattas*, and ſeem to be a kind of altars, as upon theſe are placed proviſions of all kinds, as offerings to their gods. On ſome of them are ſeen whole hogs, and on others the ſkulls of above 50, beſides the ſkulls of many dogs. The principal object of ambition among the natives is to have a magnificent morai. The male deities (for they have them of both ſexes) are worſhipped by the men, and the female by the women; and each have morais, to which the other ſex is not amitted, though they have alſo morais common to both.

(1.) * MORAL. *adj.* [*moral*, Fr. *moralis*, Lat.] 1. Relating to the practice of men towards each other, as it may be virtuous or criminal; good or bad.—Keep at the leaſt within the compaſs of *moral* actions. *Hooker.*—Laws and ordinances poſitive he diſtinguiſheth from the laws of the two tables, which were *moral*. *Hooker.*—In *moral* actions, divine law helpeth exceedingly the law of reaſon to guide life. *Hooker.*—

Mankind is broken looſe from *moral* bands.
Dryden.

2. Reaſoning or inſtructing with regard to vice and virtue.—

With plumed helm thy ſlay'r begins his threats,
Whilſt thou, a *moral* fool, ſit'ſt ſtill. *Shak.*

3. Popular; cuſtomary; ſuch as is known or admitted in the general buſineſs of life.—Phyſical and mathematical certainty may be ſtyled infallible; and *moral* certainty may properly be ſtyled indubitable. *Wilkins.*—We have found, with a *moral* certainty, the ſeat of the Moſaical abyſs. *Burnet.*—Concluſions in natural philoſophy are capable of proof by an induction of experiments; things of a *moral* nature by *moral* arguments. *Tillotſon.*—A *moral* univerſality is, when the predicate agrees to the greateſt part of the particulars which are contained under the univerſal ſubject. *Watts.*

(2.) * Moral. *n. ſ.* 1. Morality: practice or doctrine of the duties of life: this is rather a French than Engliſh ſenſe.—

Their *moral* and œconomy,
Moſt perfectly they made agree. *Prior.*

2 The doctrine inculcated by a fiction; the accommodation of a fable to form the morals.—Benedictus? why benedictus? you have ſome *moral* in this benedictus? *Moral!* No, by my troth, I have no moral meaning; I meant plain holy thiſtle. *Shakeſp. Much ado about Nothing.*—Expound the meaning or *moral* of his ſigns and tokens. *Shak. Taming of the Shrew.*—The *moral* is the firſt buſineſs of the poet, as being the ground-work of his inſtruction; this being formed, he contrives ſuch a deſign or fable as may be moſt ſuitable to the *moral*. *Dryden's Dufreſnoy.*—I found a *moral* firſt, and then ſtudied for a fable, but could do nothing that pleaſed me. *Swift to Gay.*

* *To* Moral. *v. n.* [from the adjective.] To moraliſe; to make moral reflections. Not in uſe.

When I did hear
The motley fool thus *moral* on the time,
My lungs began to crow like chanticleer,
That fools ſhould be ſo deep contemplative. *Shak.*

Moral Agent. See Moral Philosophy, *Part* I. *Sect.* II.

MORALEDA, a town of Spain in Grenada.

(1.) MORALES, Ambroſe, a Spaniſh divine, who was hiſtoriographer to Philip II. and a profeſſor in the univerſity of Alcala. He publiſhed *An Univerſal Spaniſh Chronicle*, and other works. He died in 1580.

(2.) Morales, a town of Spain in Leon.

* MORALIST. *n. ſ.* [*moraliſte*, Fr.] One who teaches the duties of life.—The advice given by a great *moraliſt* to his friend was, that he ſhould compoſe his paſſions. *Addiſon.*

* MORALITY. *n. ſ.* [*moralité*, Fr. from *moral*.] 1. The doctrine of the duties of life; ethics.—The ſyſtem of *morality*, to be gathered out of the writings of ancient ſages, falls very ſhort of that delivered in the goſpel. *Swift's Miſcel.*—A neceſſity of ſihning is as impoſſible in *morality*, as any the greateſt difficulty can be in nature. *Baker on Learning.* 2. The form of an action which makes it the ſubject of reward or puniſhment.—The *morality* of an action is founded in the freedom of that principle, by virtue of which it is in the agent's power, either to perform or not perform it. *South.*

(1.) * *To* MORALIZE. *v. a.* [*moraliſer*, Fr] 1. To apply to moral purpoſes; to explain in a moral ſenſe.—He 'as left me here behind to expound the meaning or moral of his ſigns and tokens.—I pray thee *moralize* them. *Shak. Taming of the Shrew.*—Did he not *moralize* this ſpectacle? O yes, into a thouſand ſimilies. *Shak.*—This fable is *moralized* in a common proverb. *L'Eſtrange.* 2. In *Spenſer* it ſeems to mean, to furniſh with manners or examples.—

Fierce warres and faithful loves ſhall *moralize*
my ſong. *Fairy Queen.*

3. In *Prior*, who imitates the foregoing line, it has a ſenſe not eaſily diſcovered, if indeed it has any ſenſe.—

High as their trumpets tune his lyre he ſtrung,
And with his prince's arms he *moralized* his ſong,
Prior.

(2.) * *To* Moralize. *v. n.* To ſpeak or write on moral ſubjects.

* MORALIZER. *n. ſ.* [from *moralize.*] He who moralizes.

* **MORALLY.** *adv.* [from *moral.*] 1. In the ethical ſenſe.—By good, good *morally* ſo called, bonum honeſtum, ought chiefly to be underſtood. *South.*—This, of the two brothers killing each other, is an action *morally* unnatural. *Reymer.* 2. According to the rules of virtue.—To take away rewards and puniſhments, is only pleaſing to a man who reſolves not to live *morally. Dryden.* 3. Popularly; according to the common occurrences of life; according to the common judgment made of things.—It is *morally* impoſſible for an hypocrite to keep himſelf long upon his guard. *L'Eſtrange.*—I am from the nature of the things themſelves *morally* certain, and cannot make any doubt of it. *Wilkins.*—The concurring accounts of many ſuch witneſſes render it *morally*, or, as we might ſpeak, abſolutely impoſſible that theſe things ſhould be falſe. *Atterbury.*

MORAL OBLIGATION. See next article, *Part* I. *Sect.* III.

MORAL PHILOSOPHY.

DEFINITION.

MORAL PHILOSOPHY is, "The ſcience of MANNERS or DUTY; which traces from man's nature and condition, and ſhows to terminate in his happineſs." In other words, it is "The knowledge of our DUTY and FELICITY;" or, "The art of being VIRTUOUS and HAPPY."

It is denominated an *art*, as it contains a ſyſtem of rules for becoming virtuous and happy. Whoever practiſes theſe rules, attains an habitual power or facility of becoming virtuous and happy. It is likewiſe called a *ſcience*, as it deduces thoſe rules from the principles and connections of our nature, and proves that the obſervance of them is productive of our happineſs. It is an art and a ſcience, of the higheſt dignity, importance, and uſe. Its object is man's duty, or his conduct in the ſeveral moral capacities and connections which he ſuſtains. Its office is to direct that conduct; to ſhow whence our obligations ariſe, and where they terminate. Its uſe, or end, is the attainment of happineſs; and the means it employs are rules for the right conduct of our moral powers.

Moral Philoſophy has this in common with Natural Philoſophy, that it appeals to nature or fact; depends on obſervation; and builds its reaſonings on plain uncontroverted experiments, or upon the fulleſt induction of particulars of which the ſubject will admit. We muſt obſerve, in both theſe ſciences, how nature is affected, and what her conduct is in ſuch and ſuch circumſtances: Or, in other words, we muſt collect the appearances of nature in any given inſtance; trace theſe to ſome general principles or laws of operation; and then apply theſe principles or laws to the explaining of other phenomena.

Therefore Moral Philoſophy inquires, not how man *might* have been, but how he *is* conſtituted; not into what principles or diſpoſitions his actions may be artfully reſolved, but from what principles and diſpoſitions they actually flow; not what he may, by education, habit, or foreign influence, come to be or do; but, what, by his nature, or original conſtituent principles, he is formed to be and do. We diſcover the office, uſe, or deſtination of any work, whether natural or artificial, by obſerving its ſtructure, the parts of which it conſiſts, their connection or joint action. It is thus we underſtand the office and uſe of a watch, a plant, an eye, or hand. It is the ſame with a living creature of the rational or brute kind. Therefore, to determine the office, duty, or deſtination of man; or, in other words, what his buſineſs is, or what conduct he is obliged to purſue, we muſt inſpect his conſtitution, take every part to pieces, examine their mutual relations one to the other, and the common effect or tendency of the whole.

PART I.

SECT. I. *Of* MAN *and his* CONNECTIONS.

MAN is born a weak, helpleſs, delicate creature, unprovided with food, clothing, and whatever elſe is neceſſary for ſubſiſtence or defence. And yet, expoſed as he is, in his infantile ſtate, to numberleſs wants and dangers, he is utterly incapable of ſupplying the former, or ſecuring himſelf againſt the latter. But, though thus feeble and expoſed, he finds immediate and ſure reſources in the affection and care of his parents, who refuſe no labours, and forego no dangers, to nurſe and rear up the tender babe. By theſe powerful inſtincts, as by ſome mighty chain, does nature link the parent to the child, and form the ſtrongeſt moral connection on his part, before the child has the leaſt apprehenſion of it. Hunger and thirſt, with all the ſenſations that accompany or are connected with them, explain themſelves by a language ſtrongly expreſſive, and irreſiſtibly moving. As the ſeveral ſenſes bring in notices of ſurrounding objects, the young ſpectator ſhows only ſigns of growing wonder and admiration. Bright objects and ſtriking ſounds are beheld and heard with a ſort of commotion and ſurpriſe. But, without reſting on any, he eagerly paſſes on from object to object, ſtill pleaſed with whatever is moſt new. Thus the love of novelty is formed, and the paſſion of wonder kept awake. By degrees he becomes acquainted with the moſt familiar objects, his parents, his brethren, and thoſe of the family who are moſt converſant with him. He contracts a fondneſs for them, is uneaſy when they are gone, and charmed to ſee them again. Theſe feelings become the foundation of a moral attachment on his ſide; and by this reciprocal ſympathy he forms the domeſtic alliance with his parents, brethren, and other members of the family. Hence he becomes intereſted in their concerns; and feels joy or grief, hope or fear, on their account, as well as his own. As his affections now point beyond himſelf to others, he is denominated a good or ill creature, as he ſtands well or ill affected to them. Theſe, then, are the firſt links of the moral chain; the early rudiments, or outlines, of his character; his firſt rude eſſays towards free agency. When he begins to make excurſions from the nurſery, and extends his acquaintance abroad, he forms a little circle of companions; engages with them in play, or in queſt of adventures; and leads, or is led by them, as his genius is more or leſs aſpiring. Though this is properly the ſeaſon in which appetite and paſſion have the aſcendant, yet his imagination and intellectual powers open apace; and as the various images of things paſs before the mental eye, he forms variety of taſtes; reliſhes ſome things, and diſlikes others, as his parents, companions, and a thouſand other circumſtances, lead him to combine agreeable or diſagreeable ſets of ideas, or repreſent to him objects in alluring or odious lights.

As his views are enlarged, his active and ſocial powers expand in proportion; the love of action, of imitation, and of praiſe, emulation, curioſity, docility, a paſſion for command, and fondneſs of change. His paſſions are quick, variable, and pliant to every impreſſion; his attachments and diſguſts quickly ſucceed each other. He compares things, diſtinguiſhes actions, judges of characters, and loves or hates them, as they appear well or ill affected to himſelf, or to thoſe he holds dear. Meanwhile he ſoon grows ſenſible of the conſequences of his own actions, as they attract applauſe, or contempt; he triumphs in the former, and is aſhamed of the latter; wants to hide them, and bluſhes when they are diſcovered. By theſe powers he becomes a fit ſubject of culture, the moral tie is drawn cloſer, he feels that he is accountable for his conduct to others as well as to himſelf, and thus gradually ripens for ſociety and action.

As man advances from childhood to youth, his paſſions as well as perceptions take a more extenſive range. New ſenſes of pleaſure invite him to new purſuits; he grows ſenſible to the attractions of beauty, feels a peculiar ſympathy with the ſex, and forms a more tender kind of attachment than he has yet experienced. This becomes the cement of a new moral relation, and gives a ſofter turn to his paſſions and behaviour. In this turbulent period he enters more deeply into a reliſh of friendſhip, company, exerciſes, and diverſions; the love of truth, of imitation, and of deſign, grows upon him; and as his connections ſpread among his neighbours, fellow-citizens, and countrymen, his thirſt of praiſe, emulation, and ſocial affections, grow more intenſe and active. Mean while, it is impoſſible for him to have lived thus long without having become ſenſible of thoſe more auguſt ſignatures of order, wiſdom, and goodneſs, which are ſtamped on viſible creation; and of thoſe ſtrong ſuggeſtions within himſelf of a parent mind, the ſource of all intelligence and beauty; an object as well as ſource of that activity, and thoſe aſpirations which ſometimes rouſe his inmoſt frame, and carry him out of himſelf to an almighty and all-governing power: Hence ariſe thoſe ſentiments of reverence, and thoſe affections of gratitude, reſignation, and love, which link the ſoul with the Author of Nature, and form that moſt ſublime and god-like of all connections.

Man having now reached his prime, either new paſſions ſucceed, or the old ſet are wound up to an higher pitch. For, growing more ſenſible of his connections with the public, and that particular community to which he more immediately belongs; and taking withal a larger proſpect of human life, and its various wants and enjoyments; he forms more intimate friendſhips, graſps at power, courts honour, lays down cooler plans of intereſts, and becomes more attentive to the concerns of ſociety; he enters into family connections, and indulges thoſe charities which ariſe from thence. The reigning paſſions of this period powerfully prompt him to provide for the decays of life; and in it compaſſion and gratitude exert their influence in urging the man, now in full vigour, to requite the affection and care of his parents, by ſupplying their wants, and alleviating their infirmities.

At length human life verges downwards, and old age creeps on apace, with its anxiety, love of eaſe, intereſtedneſs, fearfulneſs, foreſight, and love of offspring:—The experience of the aged is formed to direct, and their coolneſs to temper the heat of youth: the former teaches them to look back on paſt follies; and the latter to look forward into the conſequences of things, and provide againſt the worſt. Thus every age has its peculiar genius and ſet of paſſions correſponding to that period, and moſt conducive to the proſperity of the reſt. And thus are the wants of one period ſupplied by the capacities of another, and the weakneſſes of one age tally to the paſſions of another.

Beſides theſe, there are other paſſions and affections of a leſs ambulatory nature, not peculiar to one period, but belonging to every age, and acting more or leſs in every breaſt throughout life. Such are ſelf-love, benevolence, love of life, honour, ſhame, hope, fear, deſire, averſion, joy, ſorrow, anger, and the like. The two firſt are affections of a cooler ſtrain; one pointing to the good of the individual, the other to that of the ſpecies: joy and ſorrow, hope and fear, ſeem to be only modifications, or different exertions, of the ſame original affection of love and hatred, deſire and averſion, ariſing from the different circumſtances or poſition of the object deſired or abhorred, as it is preſent or abſent. From theſe likewiſe ariſe other ſecondary or occaſional paſſions, which depend, as to their exiſtence and ſeveral degrees, upon the original affections being gratified or diſappointed; as anger, complacence, confidence, jealouſy, love, hatred, dejection, exultation, contentment, diſguſt, which do not form leading paſſions, but rather hold of them.

By theſe ſimple but powerful ſprings, whether periodical or fixed, the life of man, weak and indigent as he is, is preſerved and ſecured, and the creature is prompted to a conſtant round of action, even to ſupply his own numerous and ever-returning wants, and to guard againſt the various dangers and evils to which he is obnoxious. By theſe links men are connected with each other, formed into families, drawn into particular communities, and all united, as by a common league, into one ſyſtem or body, whoſe members feel and ſympathiſe one with another. By this admirable adjuſtment of the conſtitution of man to his ſtate, and the gradual evolution of his powers, order is maintained, yond it, i. e. raiſe unneceſſary commotions, or continue longer than is needful, they are unfit to anſwer their original deſign, and therefore are in an unſound and unnatural ſtate. The exerciſe of fear or of reſentment has nothing deſirable in it, nor can we give way to either without painful ſenſations. Without a certain degree of them, we are naked and expoſed. With too high a proportion of them, we are miſerable, and often injurious to others. Thus cowardice or timidity, which is the exceſs of fear, inſtead of ſaving us in danger, makes us incapable of attending to the beſt means of preſervation, and diſarms us of courage, our natural armour. Fool-hardineſs, which is the want of a due meaſure of fear, leads us heedleſsly into danger, and lulls us into a pernicious ſecurity. Revenge, i. e. exceſſive reſentment, by the violence of its commotion, robs us of the preſence of mind which is often the beſt guard againſt injury, and inclines us to purſue the aggreſſor with more ſeverity than ſelf-defence requires. Puſillanimity, or the want of a juſt indignation againſt wrong, leaves us quite unguarded, and tends to ſink the mind into a paſſive enervated tameneſs. Therefore, "to keep the defenſive paſſions duly proportioned to our dangers, is their natural pitch and tenor."

The private paſſions lead us to purſue ſome poſitive ſpecies of private good: that good, therefore, which is the object and end of each muſt be the meaſure of their reſpective force, and direct their operation. If they are too weak or ſluggiſh to engage us in the purſuit of their ſeveral objects, they are evidently deficient; but if they defeat their end by their impetuoſity, then are they ſtrained beyond the juſt tone of nature. Thus vanity, or an exceſſive paſſion for applauſe, betrays into ſuch meanneſſes and little arts of popularity, as make us forfeit the honour we ſo anxiouſly court. On the other hand, a total indifference about the eſteem of mankind removes a ſtrong guard and ſpur to virtue, and lays the mind open to the moſt abandoned proſecutions. Therefore, "to keep our private paſſions and deſires proportioned to our wants, is the juſt meaſure and pitch of this claſs of affections."

The defenſive and private paſſions all agree, in general, in their tendency to the good of the individual. Therefore, when there is a colliſion of intereſt, as may ſometimes happen, that aggregate of good or happineſs, which is compoſed of the particular goods to which they reſpectively tend, muſt be the common ſtandard by which their comparative degrees of ſtrength are to be meaſured: that is to ſay, if any of them, in the degree in which they prevail, are incompatible with the greateſt aggregate of good or moſt extenſive intereſt of the individual, then are they unequal and diſproportionate. For in judging of a particular ſyſtem or conſtitution of powers, we call that the ſupreme or principal end, in which the aims of the ſeveral parts or powers coincide, and to which they are ſubordinate; and reckon them in due proportion to each other, and right with regard to the whole, when they maintain that ſubordination of ſubſerviency. Therefore, "to proportion our defenſive and private paſſions in ſuch meaſure to our dangers and wants as beſt to ſecure the individual, and obtain the greateſt aggregate of private good or happineſs, is their juſt balance or comparative ſtandard in caſe of competition."

In like manner, as the public or ſocial affections point at the good of others, that good muſt be the meaſure of their force. When a particular ſocial affection, as gratitude or friendſhip, which belongs to a particular ſocial connection, viz. that of a benefactor or of a friend, is too feeble to make us act the grateful or friendly part, that affection, being inſufficient to anſwer its end, is defective and unſound. If, on the other hand, a particular paſſion of this claſs counteract or defeat the intereſt it is deſigned to promote, by its violence or diſproportion, then is that paſſion exceſſive and irregular. Thus natural affection, if it degenerates into a paſſionate fondneſs, not only hinders the parents from judging coolly of the intereſt of their offſpring, but often leads them into a moſt partial and pernicious indulgence.

As every kind affection points at the good of its particular object, it is poſſible there may be ſometimes a colliſion of intereſts or goods. Thus the regard due to a friend may interfere with that which we owe to a community. In ſuch a competition of intereſts, it is evident that the greateſt is to be choſen; and that is the greateſt intereſt which contains the greateſt ſum or aggregate of public good, greateſt in quantity as well as duration. This then is the common ſtandard by which the reſpective forces and ſubordinations of the ſocial affections muſt be adjuſted. Therefore we conclude, that "this claſs of affections are ſound and regular when they prompt us to purſue the intereſt of individuals in an entire conſiſtency with the public good."

Thus we have found, by an induction of particulars, the natural pitch or tenor of the different orders of affection, conſidered apart by themſelves. Now, as the virtue or perfection of every creature lies in following its nature, or acting ſuitably to the juſt proportion and harmony of its ſeveral powers; therefore, "the VIRTUE of a creature endowed with ſuch affections as man muſt conſiſt in obſerving or acting agreeably to their natural pitch and tenor."

But as there are no independent affections in the fabric of the mind, no paſſion that ſtands by itſelf, without ſome relation to the reſt, we cannot pronounce of any one, conſidered APART, that it is either too ſtrong or too weak. Its ſtrength and juſt proportion muſt be meaſured, not only by its ſubſerviency to its own immediate end, but by the reſpect it bears to the whole ſyſtem of affection. Therefore, we ſay a paſſion is too ſtrong, not only when it defeats its own end, but when it impairs the force of other paſſions, which are equally neceſſary to form a temper of mind ſuited to a certain œconomy or ſtate; and too weak, not merely on account of its inſufficiency to anſwer its end, but becauſe it cannot ſuſtain its part or office in the balance of the whole ſyſtem. Thus the love of life may be too ſtrong, when it takes from the regard due to one's country, and will not allow one bravely to encounter dangers, or even death on its account. Again, the love of fame may be too weak, when it throws down the fences which render virtue more ſecure, or weakens the incentives which make it more active and public ſpirited.

If it be aſked, "How far may the affections towards private good or happineſs be indulged?" One limit was before fixed for the particular indulgence of each, viz. their ſubordination to the common aggregate of good to the private ſyſtem. In theſe therefore a due regard is always ſuppoſed to be had to health, reputation, fortune, freedom of action, the unimpaired exerciſe of reaſon, the calm enjoyment of one's ſelf, which are all private goods. Another limit now reſults from the balance of affection juſt named, viz. "The ſecurity and happineſs of others:" or, to expreſs it more generally, "a private affection may be ſafely indulged, when, by that indulgence, we do not violate the obligations which reſult from our higher relations or public connections." A juſt reſpect therefore being had to theſe boundaries which nature has fixed in the breaſt of every man, what ſhould limit our purſuits of private happineſs?

Whether there is ever a real colliſion of intereſts between the public and private ſyſtem of affections, or the ends which each claſs has in view, will be afterwards conſidered; but where there is no colliſion, there is little or no danger of carrying either, but eſpecially the public affections, to exceſs, provided both kinds are kept ſubordinate to a diſcreet and cool ſelf-love, and to a calm and univerſal benevolence, which principles ſtand as guards at the head of each ſyſtem. This then is the conduct of the paſſions, conſidered as particular and ſeparate forces, carrying us to their reſpective ends; and this is their balance, conſidered as compound powers, or powers mutually related, acting in conjunction towards a common end, and conſequently as forming a ſyſtem or whole.

Now, whatever adjuſts or maintains this balance, whatever in the human conſtitution is formed for directing the paſſions ſo as to keep them from defeating their own end or interfering with each other, muſt be a principle of a ſuperior nature to them, and ought to direct their meaſures and govern their proportions. But it was found that reaſon is ſuch a principle, which points out the tendency of our paſſions, weighs their influence upon private and public happineſs, and ſhows the beſt means of attaining either. It having been likewiſe found that there is another directing or controuling principle, which we call CONSCIENCE or the MORAL SENSE, which, by a native kind of authority, judges of affections and actions, pronouncing ſome juſt and good, and others unjuſt and ill; it follows, that the paſſions, which are mere blind forces, are principles inferior and ſubordinate to this judging faculty. Therefore the paſſions ought to be ſubjected to the direction and authority of the controuling principles.

We conclude, therefore, from this induction, that "the conſtitution or juſt œconomy of human nature conſiſts in a regular ſubordination of the paſſions and affections to the authority of conſcience and the direction of reaſon."

That ſubordination is regular, when the proportion formerly mentioned is maintained; that is to ſay, "when the defenſive paſſions are kept proportioned to our dangers; when the private paſſions are proportioned to our wants; and when the public affections are adapted to our public connections, and proportioned to the wants and dangers of others." But the natural ſtate, or the ſound and vigorous conſtitution of any creature, or the juſt œconomy of its powers, we call its health and perfection; and the acting agreeably to theſe, its virtue or goodneſs. Therefore, "the health and perfection of man muſt lie in the aforeſaid ſupremacy of conſcience and reaſon, and in the ſubordination of the paſſions to their authority and direction. And its virtue or goodneſs muſt conſiſt in acting agreeably to that order or œconomy."

That ſuch an ornament of the mind, and ſuch a conduct of its powers and paſſions, will ſtand the teſt of reaſon, cannot admit of diſpute. For, upon a fair examination into the conſequences of things, or the relations and aptitudes of means to ends, reaſon evidently demonſtrates, and experience confirms it, "that to have our defenſive paſſions duly proportioned to our dangers, is the ſureſt way to avoid or get clear of them, and obtain the ſecurity we ſeek after. To proportion our private paſſions to our wants, is the beſt means to ſupply them; and, to adapt our public affections to our ſocial relations, and the good of others, is the moſt effectual method of fulfilling the one, and procuring the other." In this ſenſe, therefore, virtue may be ſaid to be a "conduct conformable to reaſon," as reaſon diſcovers an apparent aptitude, in ſuch an order and economy of powers and paſſions, to anſwer the end for which they are naturally formed.

If the idea of MORAL OBLIGATION is to be deduced merely from this aptitude or connection between certain paſſions, or a certain order and balance of paſſions, and certain ends obtained or to be obtained by them, then is reaſon or reflection, which perceives that aptitude or connection, the proper judge of moral obligation; and on this ſuppoſition it may be defined, the connection between the affection and the end, or between the action and the motive; for the end is the motive or the final cauſe, and the affection is the action or its immediate natural cauſe. A man, from mere ſelf-love, may be induced to fulfil that obligation which is founded on the connection between the defenſive paſſions and their ends, or the private paſſions and their ends; becauſe, in that caſe, his own intereſt will prompt him to indulge them in the due proportion required. But if he has no affections which point beyond himſelf, no principle but ſelf-love, or ſome ſubtle modification of it, what ſhall intereſt him in the happineſs of others, where there is no connection between it and his own? or what ſenſe can he have of moral obligation to promote it? Upon this ſcheme, therefore, without public or ſocial affection there could be no motive, and conſequently no moral obligation to a beneficent diſintereſted conduct.

Let us appeal to our inmoſt ſenſe and experience, "how we ſtand affected to thoſe different ſets of paſſions, in the juſt meaſure and balance of which we found a right temper to conſiſt."

For this is entirely a matter of experience, in which we muſt examine, as in any other natural inquiry, "what are the genuine feelings and operations of nature, and what affections or ſymptoms of them appear in the given inſtance."

The defenſive paſſions, as anger and fear, give us rather pain than pleaſure, yet we cannot help feeling them when provoked by injury, or expoſed to harm. We account the creature imperfect that wants them, becauſe they are neceſſary to his defence. Nay, we ſhould in ſome meaſure condemn ourſelves, did we want the neceſſary degree of reſentment and caution. But if our reſentment exceeds the wrong received, or our caution the evil dreaded, we then blame ourſelves for having over-acted our part. Therefore, while we are in danger, to be totally deſtitute of them we reckon a blameable defect, and to feel them in a juſt, *i. e.* neceſſary meaſure, we approve, as ſuited to the nature and condition of ſuch a creature as man. But our ſecurity obtained, to continue to indulge them, we not only diſapprove as hurtful, but condemn as unmanly, unbecoming, and mean-ſpirited; nor will ſuch a conduct afford any ſelf-approving joy when we coolly reflect upon it.

With regard to the private paſſions, ſuch as love of life, pleaſure, eaſe, and the like, as theſe aim at private good, and are neceſſary to the perfection and happineſs of the individual, we ſhould reckon any creature defective and even blameable, that was deſtitute of them. Thus, we condemn the man who imprudently ruins his fortune, impairs his health, or expoſes his life; we not only pity him as an unfortunate creature, but feel a kind of moral indignation and contempt of him, for having made himſelf ſuch. On the other hand, though a diſcreet ſelf-regard does not attract our eſteem and veneration, yet we approve of it in ſome degree as neceſſary to conſtitute a finiſhed creature, nay, to complete the virtuous character, as exactly ſuited to our preſent indigent ſtate. There are ſome paſſions reſpecting private good, towards which we feel higher degrees of approbation, as the love of knowledge, as action, of honour, and the like. We eſteem them as marks of an ingenious mind; and cannot help thinking the character in which they are wanting remarkably ſtupid, and in ſome degree immoral.

With regard to the ſocial affections, as compaſſion, natural affection, friendſhip, benevolence, and the like, we approve, admire, and love them in ourſelves and in all in whom we diſcover them, with an eſteem and approbation, if not different in kind, yet ſurely far ſuperior in degree to what we feel towards the other paſſions. Theſe we reckon neceſſary, juſt, and excellently fitted to our ſtructure and ſtate; and the creature which wants them, we call defective, ill-conſtituted, a kind of abortion. But the public affections we eſteem as ſelf-worthy, originally and eternally amiable.

But among the ſocial affections we make an obvious and conſtant diſtinction, viz. between thoſe particular paſſions which urge us with a ſudden violence and uneaſy kind of ſenſation, to purſue the good of their reſpective objects, as pity, natural affection, and the like; and thoſe calm diſpaſſionate affections and deſires which prompt us more ſteadily and uniformly to promote the happineſs of others. The former we generally call PASSIONS, to diſtinguiſh them from the other ſort, which go more commonly by the name of AFFECTIONS, or calm deſires. The firſt kind we approve indeed, and delight in; but we feel ſtill higher degrees of approbation and moral complacence towards the laſt, and towards all limitation of the particular inſtincts, by the principle of univerſal benevolence. The more objects the calm actions take in, and the worthier theſe are, their dignity riſes in proportion, and with this our approbation keeps in exact pace. A character, on the other hand, which is quite diveſted of theſe public affections, which feels no love for the ſpecies, but inſtead of it entertains malice, rancour, and ill will, we reckon totally immoral and unnatural.

Such then are the ſentiments and diſpoſitions we feel when theſe ſeveral orders or affections paſs before the mental eye. Therefore, "that ſtate in which we feel ourſelves moved, in the manner above deſcribed, towards thoſe affections and paſſions, as they come under the mind's review, and in which we are inſtantaneouſly and independently of our choice or volition, prompted to a correſpondent conduct, we call a ſtate of moral obligation." Let us ſuppoſe, for inſtance, a parent, a friend, a benefactor, reduced to a condition of the utmoſt indigence and diſtreſs, and that it is in our power to give them immediate relief. To what conduct are we obliged? what duty does nature dictate and require in ſuch a caſe? Attend to nature, and nature will tell, with a voice irreſiſtibly audible and commanding to the human heart, with an authority which no man can ſilence without being ſelf-condemned, and which no man can elude but at his peril, "that immediate relief ought to be given." Again, let a friend, a neighbour, or even a ſtranger, have lodged a depoſit in our hands, and after ſome time reclaim it; no ſooner do theſe ideas of the confidence repoſed in us, and of property not transferred, but depoſited, occur, than we immediately and unavoidably feel and recognize the obligation to reſtore it. In both theſe caſes we ſhould condemn and even loathe ourſelves if we acted otherwiſe, as having done, or omitted doing, what we ought not, as having acted beneath the dignity of our nature; and contrary to our moſt intimate ſenſe of right and wrong: we ſhould accuſe ourſelves as guilty of ingratitude, injuſtice, and inhumanity, and be conſcious of deſerving the cenſure, and therefore dread the reſentment, of all rational beings. But in complying with the obligation, we feel joy and ſelf approbation, are conſcious of an inviolable harmony between our nature and duty, and think ourſelves entitled to the applauſe of every impartial ſpectator of our conduct.

To deſcribe therefore what we cannot perhaps define, a ſtate of MORAL OBLIGATION is "that ſtate in which a creature, endued with ſuch ſenſes, powers, and affections, as man would condemn himſelf, and think he deſerved the condemnation of all others, ſhould he refuſe to fulfil it; but would approve himſelf, and expect the approbation of all others, upon complying with it."

And we call him a MORAL AGENT, who is in ſuch a ſtate, or is ſubject to moral obligation. Therefore, as man's ſtructure and connections often ſubject him to ſuch a ſtate of MORAL OBLIGATION, we conclude that he is a moral agent. But as men may ſometimes act without knowing what he does, as in caſes of frenzy or diſeaſe, or in many natural functions; or knowing what he does, he may act without choice or affection, as in caſes of neceſſity or compulſion; therefore to denominate an action moral, *i. e.* approveable, or blameable, it muſt be done knowingly and willingly, or from affection and choice. "A morally good action, then, is to fulfil a moral obligation knowingly and willingly." And a morally bad action, or an immoral action, is, "to violate a moral obligation knowingly and willingly."

As not an action, but a ſeries of actions conſtitute a character; as not an affection, but a ſeries of affections conſtitute a temper; and as we denominate things by the groſs, *à fortiori*, or by the qualities which chiefly prevail in them; therefore we call that a "morally good character, in which a ſeries of morally good actions prevail;" and that a "morally good temper, in which a ſeries of morally good affections have the aſcendant." A bad character and bad temper are the reverſe. But where the above-mentioned order or proportion of paſſions is maintained, there a ſeries of morally good affections and actions will prevail. Therefore, "to maintain that order and proportion, is to have a morally good temper and character." But a "morally good temper and character is moral rectitude, integrity, virtue, or the completion of duty."

If it be aſked, after all, "How we come by the idea of moral obligation or duty?" we may anſwer, That we come by it in the ſame way as by our other original and primary perceptions. We receive them all from the great Author of nature. For this idea of moral obligation is not a creature of the mind, or dependant on any previous act of volition; but ariſes on certain occaſions, or when certain other ideas are preſented to the mind, as neceſſarily, inſtantaneouſly, and unavoidably, as pain does upon too near an approach to the fire, or pleaſure from the fruition of any good. It does not, for inſtance, depend on our choice, whether we ſhall feel the obligation to ſuccour a diſtreſſed parent, or to reſtore a depoſit entruſted to us when it is recalled. We cannot call this a compound idea made up of one or more ſimple ideas. We may indeed, nay we muſt, have ſome ideas antecedent to it, *e. g.* that of *a parent—in diſtreſs*—of *a child—able to relieve*—of the relation of one to the other—of *a truſt*—of *right*, &c. But none of theſe ideas conſtitute the perception of obligation. This is an idea quite diſtinct from, and ſomething ſuperadded to, the ideas of the correlatives, or the relation ſubſiſting between them. Theſe indeed, by a law of our nature, are the occaſion of ſuggeſting it; but they are as totally different from it as colours are from ſight. By ſenſe of reflection we perceive the correlatives; our memory recals the favours or depoſit we received; the various circumſtances of the caſe are matters of fact or experience; but ſome delicate inward organ or power, or call it what we pleaſe, does, by a certain inſtantaneous ſympathy, antecedent to the cool deductions of reaſon, and independent of previous inſtruction, art, or volition, perceive the moral harmony, the living, irreſiſtible charms of moral obligation, which immediately intereſts the correſpondent paſſions, and prompts us to fulfil its lawful dictates.

We need not apprehend any danger from the quickneſs of its deciſions, nor be frightened becauſe it looks like inſtinct, and has been called ſo. Would we approve one for deliberating long, or reaſoning the matter much at leiſure, whether he ſhould relieve a diſtreſſed parent, feed a ſtarving neighbour, or reſtore the truſt committed to him? ſhould we not ſuſpect the reaſoner of knavery, or of very weak affections to virtue? We employ reaſon, and worthily employ it, in examining the condition, relations, and other circumſtances of the agent or patient, or of thoſe with whom either of them are connected, or, in other words, the ſtate of the caſe: and in complicated caſes, where the circumſtances are many, it may require no ſmall attention to find the true ſtate of the caſe; but when the relations of the agent or patient, and the circumſtances of the action, are obvious, or come out ſuch after a fair trial, we ſhould ſcarce approve him who demurs on the obligation to that conduct which the caſe ſuggeſts.

It is therefore evident, that it is not the pleaſure, or agreeable ſenſations, which accompany the exerciſe of the ſeveral affections, nor thoſe conſequent to the actions, that conſtitute moral obligation, or excite in us the idea ot it. That pleaſure is poſterior to the idea of obligation; and frequently we are obliged, and acknowlege ourſelves under an obligation, to ſuch affections and actions as are attended with pain; as in the trials of virtue, where we are obliged to ſacrifice private to public good, or a preſent pleaſure to a future intereſt. We have pleaſure in ſerving an aged parent, but it is neither the perception nor proſpect of that pleaſure which gives us the idea of obligation to that conduct.

SECT. III. *The* FINAL *Cauſes of our* MORAL FACULTIES *of* PERCEPTION *and* AFFECTION.

WE have now taken a general proſpect of MAN and of his moral powers and connections, and on theſe erected a ſcheme of duty, or moral obligation, which ſeems to be confirmed by experience, conſonant to reaſon, and approved by his moſt inward and moſt ſacred ſenſes. It is proper in the next place to take a more particular view of the final cauſes of thoſe delicate ſprings by which he is impelled to action, and of thoſe clogs by which he is reſtrained from it. By this detail we ſhall be able to judge of their aptitude to anſwer their end, in a creature endued with his capacities, ſubject to his wants, expoſed to his dangers, and ſuſceptible of his enjoyments; and thence we ſhall be in a condition to pronounce concerning the end of his whole ſtructure, its harmony with its ſtate, and conſequently its ſubſerviency to anſwer the great and benevolent intentions of its author.

The Supreme Being has ſeen fit to blend in the whole of things a prodigious variety of diſcordant and contrary principles, light and darkneſs, pleaſure and pain, good and evil. There are multifarious natures, higher and lower, and many intermediate ones between the widely diſtant extremes. Theſe are differently ſituated, variouſly adjuſted, and ſubjected to each other, and all of them ſubordinate to the order and perfection of the whole. We may ſuppoſe man placed as in a centre amidſt thoſe innumerable orders of beings, by his outward frame drawing to the material ſyſtem, and by his inward connected with the INTELLECTUAL or moral, and of courſe affected by the laws which govern both, or affected by that good and that ill which reſult from thoſe laws. In this infinite variety of relations with which he is ſurrounded, and of contingencies to which he is liable, he feels ſtrong attractions to the good, and violent repulſions or averſions to the ill. But as good and ill are often blended, and wonderfully complicated one with the other; as they ſometimes immediately produce and run up into each other, and at other times lie at great diſtances, yet, by means of intervening links, introduce one another; and as theſe effects are often brought about in conſequence of hidden relations and general laws, of the energy of which he is an incompetent judge; it is eaſy for him to miſtake good for evil, and evil for good; and conſequently he may be frequently attracted by ſuch things as are deſtructive, or repel ſuch as are ſalutary. Thus, by the tender and complicated frame of his body, he is ſubjected to a great variety of ills; to ſickneſs, cold, heat, fatigue, and innumerable wants. Yet his knowledge is ſo narrow withal, and his reaſon ſo weak, that in many caſes he cannot judge, in the way of inveſtigation or reaſoning, of the connections of thoſe effects with their reſpective cauſes, or of the various latent energies of natural things.—He is therefore informed of this connection by the experience of certain ſenſes or organs of perception, which, by a mechanical inſtantaneous motion, feel the good and the ill, receiving pleaſure from one and pain from the other. By theſe, without any reaſoning, he is taught to chooſe what tends to his welfare, and to avoid what tends to his ruin. Thus, by his ſenſes of taſte and ſmell, or by the pleaſure he receives from certain kinds of food, he is admoniſhed which agree with his conſtitution; and by an oppoſite ſenſe of pain he is informed which ſort diſagree, or are deſtructive of it; but is not by means of this inſtructed in the inward natures and conſtitutions of things.

Some of theſe ſenſes are armed with ſtrong degrees of uneaſineſs or pain, in order to urge him to ſeek after ſuch objects as are ſuited to them. And theſe reſpect his more immediate and preſſing wants, as the ſenſe of hunger, thirſt, cold, and the like; which, by their painful importunities, compel him to provide food, drink, raiment, ſhelter. Thoſe inſtincts by which we are thus prompted, with ſome kind of commotion or violence, to attract and purſue good, or to repel and avoid ill, we call appetites and paſſions. By our ſenſes then we are informed of what is good or ill to the private ſyſtem, or the individual; and by our private appetites and paſſions we are impelled to the one, and reſtrained from the other.

In conſequence of this machinery, and the great train of wants to which our nature ſubjects us, we are engaged in a continued ſeries of occupations, which often require much application of thought, or great bodily labour, or both. The neceſſaries of life, food, clothes, ſhelter, and the like, muſt be provided; conveniences muſt be acquired to render life ſtill more comfortable. To obtain theſe, arts, induſtry, manufactures, and trade, are neceſſary. And to ſecure the peaceable enjoyment of their fruits, civil government, policy, and laws, muſt be contrived, and the various buſineſs of public life carried on: thus, while man is concerned and buſied in making proviſion, or obtaining ſecurity for himſelf, he is by degrees engaged in connections with a family, friends, neighbours, a community, or a commonwealth. Hence ariſe new wants, new intereſts, new cares, and new employments. The paſſions of one man interfere with thoſe of another. Intereſts are oppoſed. Competitions ariſe, contrary courſes are taken. Diſappointments happen, diſtinctions are made, and parties formed. This opens a vaſt ſcene of diſtraction and embarraſſment, and introduces a mighty train of good and ill, both public and private. Yet amidſt all this confuſion and hurry, plans of action muſt be laid, conſequences foreſeen or guarded againſt, inconveniences provided for; and frequently particular reſolutions muſt be taken, and ſchemes executed, without reaſoning or delay.

Our Supreme Parent, watchful for the whole, has not left man to be informed only by the cool notices of reaſon, of the good or ill, the happineſs or miſery of his fellow-creatures. He has made him ſenſible of their good and happineſs, but eſpecially of their ill and miſery, by an immediate ſympathy, or quick feeling of pleaſure and of pain.

The latter we call PITY or COMPASSION. For the former, though every one, who is not quite diveſted of humanity, feels it in ſome degree, we have not got a name, unleſs we call it CONGRATULATION or *joyful* SYMPATHY, or that good humour which ariſes on ſeeing others pleaſed or happy. Both theſe feelings have been called in general the PUBLIC OR COMMON SENSE, *κοινω μνημοσυνη*, by which we feel for others, and are intereſted in their concerns as really, though perhaps leſs ſenſibly, than in our own.

When we ſee our fellow-creatures unhappy thro' the fault or injury of others, we feel reſentment or indignation againſt the unjuſt cauſers of that miſery. If we are conſcious that it has happened through our fault or injurious conduct, we feel ſhame; and both theſe claſſes of ſenſes and paſſions, regarding miſery and wrong, are armed with ſuch ſharp ſenſations of pain, as not only prove a powerful guard and ſecurity to the ſpecies, or public ſyſtem, againſt thoſe ills it may, but ſerve alſo to leſſen or remove thoſe ills it does, ſuffer. Compaſſion draws us out of ourſelves to bear a part of the misfortunes of others, powerfully ſolicits us in their favour, melts us at the ſight of their diſtreſs, and makes us in ſome degree unhappy till they are relieved from it. It is peculiarly well adapted to the condition of human life, becauſe it is much more and oftener in our power to do miſchief than good, and to prevent or leſſen miſery than to communicate poſitive happineſs; and therefore it is an admirable reſtraint upon the more ſelfiſh paſſions, or thoſe violent impulſes that carry us to the hurt of others.

There are other particular inſtincts or paſſions which intereſt us in the concerns of others, even while we are moſt buſy about our own, and which are ſtrongly attractive of good, and repulſive of ill to them. Such are natural affection, friendſhip, love, gratitude, deſire of fame, love of ſociety, of one's country, and others that might be named. Now as the private appetites and paſſions were found to be armed with ſtrong ſenſations of deſire and uneaſineſs, to prompt man the more effectually to ſuſtain labours, and to encounter danger in purſuit of thoſe goods that are neceſſary to the preſervation and the welfare of the individual, and to avoid thoſe ills which tend to his deſtruction; in like manner, it was neceſſary that this other claſs of deſires and affections ſhould be prompted with as quick ſenſations of pain, not only to counteract the ſtrength of their antagoniſts, but to engage us in a virtuous activity for our relations, families, friends, neighbours, or country. Indeed, our ſenſe of right and wrong will admoniſh us that it is our duty, and reaſon and experience farther aſſure us that it is both our intereſt and beſt ſecurity, to promote the happineſs of others; but that ſenſe, that reaſon, and that experience, would frequently prove but weak and ineffectual prompters to ſuch a conduct, eſpecially in caſes of danger and hardſhip, and amidſt all the importunities of nature, and that conſtant hurry in which the private paſſions involve us, without the aid of thoſe particular kind affections which mark out to us particular ſpheres of duty, and with an agreeable violence engage and fix us down to them.

It is evident, therefore, that thoſe two claſſes of affection, the private and public, are ſet one againſt the other, and deſigned to controul and limit each other's influence, and thereby to produce a juſt balance in the whole. (See *Hutcheſon's Conduct of the Paſſions, Treat.* 1. § 2.) In general, the violent ſenſations of pain and uneaſineſs which accompany hunger, thirſt, and the other private appetites, or too great fatigue of mind or of body, prevent the individual from running to great exceſſes in the exerciſe of the higher functions of the mind, as too intenſe thought in the ſearch of truth, violent application to buſineſs of any kind, and different degrees of romantic heroiſm. On the other hand, the finer ſenſes of perception, and thoſe generous deſires and affections which are connected with them, the love of action, of imitation, of truth, honour, public virtue, and the like, are wiſely placed in the oppoſite ſcale, to prevent us from ſinking into the dregs of the animal life, and debaſing the dignity of man below the condition of brutes. So that, by the mutual re-action of thoſe oppoſite powers, the bad effects are prevented that would naturally reſult from their acting ſingly and apart, and the good effects are produced which each are ſeverally formed to produce.

The ſame wholeſome oppoſition appears likewiſe in the particular counter-workings of the private and public affections one againſt the other. Thus compaſſion is adapted to counterpoiſe the love of eaſe, of pleaſure, and of life, and to diſarm or ſet bounds to reſentment; and reſentment of injury done to ourſelves, or to our friends, prevents an effeminate compaſſion or conſternation, and gives us a noble contempt of labour, pain, and death. Natural affection, friendſhip, love of one's country, nay, zeal for religion, liberty, or any particular virtue, are frequently more than a match for the whole train of ſelfiſh paſſions. On the other hand, without that intimate over-ruling paſſion of ſelf-love, and thoſe private deſires which are connected with it, the ſocial and tender inſtincts of the human heart would degenerate into the wildeſt dotage, the moſt torturing anxiety, or downright frenzy.

But not only are the different orders or claſſes of affection checks one upon another, but paſſions of the ſame claſſes are mutual clogs. Thus, how many are with-held from the violent outrages of reſentment by fear? and how eaſily is fear controuled in its turn, while great wrongs awaken great reſentment? The private paſſions often interfere, and therefore moderate the violence of each other; and a calm ſelf-love is placed at their head, to direct, influence, and controul their particular attractions and repulſions. The public affections likewiſe reſtrain each other; and all of them are put under the controul of a calm diſpaſſionate benevolence, which ought in like manner to direct and limit their particular motions. Thus moſt part, if not all the paſſions, have a twofold aſpect, and ſerve a twofold end. In one view they may be conſidered as powers, impelling mankind to a certain courſe, with a force proportioned to the apprehended moment of the good they aim at. In another view they appear as weights, balancing the action of the powers, and controuling the violence of their impulſes. By means of theſe powers and weights a natural poiſe is ſettled in the human breaſt by its all-wiſe Author, by which the creature is kept tolerably ſteady and regular in his courſe, amidſt that variety of ſtages through which he muſt paſs.

But this is not all the proviſion which God has made for the hurry and perplexity of the ſcene in which man is deſtined to act. Amidſt thoſe infinite attractions and repulſions towards private and public good and ill, mankind either cannot often foreſee the conſequences or tendencies of all their actions towards one or other of theſe, eſpecially where thoſe tendencies are intricate, and point different ways, or thoſe conſequences remote and complicated; or though, by careful and cool inquiry, and a due improvement of their rational powers, they might find them out, yet, diſtracted as they are with buſineſs, amuſed with trifles, diſſipated by pleaſure, and diſturbed by paſſion, they either have or can find no leiſure to attend to thoſe conſequences, or to examine how far this or that conduct is productive of private or public good on the whole. Therefore, were it left entirely to the ſlow and ſober deductions of reaſon to trace thoſe tendencies, and make out thoſe conſequences, it is evident, that in many particular inſtances the buſineſs of life would ſtand ſtill, and many important occaſions of action be loſt, or the groſſeſt blunders be committed On this account, the Deity, beſides that general approbation which we beſtow on every degree of kind affection, has moreover implanted in man many particular perceptions or determinations to approve of certain qualities or actions, which, in effect, tend to the advantage of ſociety, and are connected with private good; though he does not always ſee that tendency, or mind that connection. And theſe perceptions or determinations do without reaſoning point out, and, antecedent to views of intereſt, prompt to a conduct beneficial to the public, and uſeful to the private ſyſtem. Such is that ſenſe of candour and veracity, that abhorrence of fraud and falſehood, that ſenſe of fidelity, juſtice, gratitude, greatneſs of mind, fortitude, clemency, decorum; and that diſapprobation of knavery, injuſtice, ingratitude, meanneſs of ſpirit, cowardice, cruelty, and indecorum, which are natural to the human mind. The former of thoſe diſpoſitions, and the actions flowing from them, are approved, and thoſe of the latter kind diſapproved by us, even abſtracted from the view of their tendency or conduciveneſs to the happineſs or miſery of others or of ourſelves. In one we diſcern a beauty, a ſuperior excellency, a congruity to the dignity of man; in the other a deformity, a littleneſs, a debaſement, of human nature.

There are other principles alſo connected with the good of ſociety, or the happineſs and perfection of the individual, though that connection is not immediately apparent, which we behold with real complacency and approbation, though perhaps inferior in degree, if not in kind; ſuch as gravity, modeſty, ſimplicity of deportment, temperance, prudent economy; and we feel ſome degree of contempt and diſlike where they are wanting, or where the oppoſite qualities prevail. Theſe and the like perceptions or feelings are either different modifications of the moral ſenſe, or ſubordinate to it, and plainly ſerve the ſame important purpoſe, being expeditious monitors, in the ſeveral emergencies of a various and diſtracted life, of what is right, what is wrong, what is to be purſued, and what avoided; and, by the pleaſant or painful conſciouſneſs which attends them, exerting their influence as powerful promoters to a ſuitable conduct.

From a ſlight inſpection of the above-named principles, it is evident they all carry a friendly aſpect to ſociety and the individual, and have a more immediate or remote tendency to promote the perfection or good of both. This tendency cannot be always foreſeen, and would be often miſtaken or ſeldom attended to by a weak, buſy, ſhort-ſighted creature like man, both raſh and variable in his opinions, a dupe to his own paſſions, or to the deſigns of others, liable to ſickneſs, to want, and to error. Principles, therefore, which are ſo nearly linked with private ſecurity and public good, by directing him, without operoſe reaſoning, where to find the one, and how to promote the other; and, by prompting him to a conduct conducive to both, are admirably adapted to the exigencies of his preſent ſtate, and wiſely calculated to obtain the ends of univerſal benevolence.

It were eaſy, by conſidering the ſubject in another light, to ſhow, in a curious detail of particulars, how wonderfully the inſide of man, or that aſtoniſhing train of moral powers and affections with which he is endued, is fitted to the ſeveral ſtages of that progreſſive and probationary ſtate through which he is deſtined to paſs. As our faculties are narrow and limited, and riſe from very ſmall and imperfect beginnings, they muſt be improved by exerciſe, by attention, and repeated trials. And this holds true, not only of our intellectual, but of our moral and active powers. The former are liable to errors in ſpeculation, the latter to blunders in practice; and both often terminate in miſfortunes and pains. And thoſe errors and blunders are generally owing to our paſſions, or to our too forward and warm admiration of thoſe partial goods they naturally purſue, or to our fear of thoſe partial ills they naturally repel. Thoſe miſfortunes, therefore, lead us back to conſider where our miſconduct lay, and whence our errors flowed; and conſequently are ſalutary pieces of trial, which tend to enlarge our views, to correct and refine our paſſions, and thus improve both our intellectual and moral powers. Our paſſions then are the rude materials of our virtue, which Heaven has given us to work up, to refine and poliſh into an harmonious and divine piece of workmanſhip. They furniſh out the whole machinery, the calms and ſtorms, the lights and ſhades of human life. They ſhow mankind in every attitude and variety of character, and give virtue both its ſtruggles and its triumphs. To conduct them well in every ſtate, is merit; to abuſe or miſapply them, is demerit.

The different ſets of ſenſes, powers, and paſſions, which unfold themſelves in theſe ſucceſſive ſtages, are both neceſſary and adapted to that riſing and progreſſive ſtate. Enlarging views and growing connections require new paſſions and new habits; and thus the mind, by theſe continually expanding and finding a progreſſive exerciſe, riſes to higher improvements, and puſhes forward to maturity and perfection. In this beautiful economy and harmony of our ſtructure, both outward and inward, with that ſtate we may at once diſcern the great lines of our duty traced out in the faireſt characters, and contemplate with admiration a more marvellous ſcene of divine wiſdom and goodneſs laid in the human breaſt, than we ſhall perhaps find in the whole compaſs of nature.

From this detail it appears, that man, by his original frame, is made for a temperate, compaſſionate, benevolent, active, and progreſſive ſtate. He is ſtrongly attractive of the good, and repulſive of the ills which befal others as well as himſelf. He feels the higheſt approbation and moral complacence in thoſe affections, and in thoſe actions, which immediately and directly reſpect the good of others, and the higheſt diſapprobation and abhorrence of the contrary. Beſides theſe, he has many particular perceptions or inſtincts of approbation, which, though perhaps not of the ſame kind with the others, yet are accompanied with correſpondent degrees of affection, proportioned to their reſpective tendencies to the public good. Therefore, by acting agreeably to theſe principles, man acts agreeably to his ſtructure, and fulfils the benevolent intentions of its author. But we call a thing good when it anſwers its end, and a creature good, when he acts in a conformity to his conſtitution. Conſequently, man muſt be denominated good or virtuous when he acts ſuitably to the principles and deſtination of his nature.

PART II.

Sect. I. *The* PRINCIPAL DISTINCTIONS *of* DUTY *or* VIRTUE.

WE have now conſidered the conſtitution and connections of man, and on thoſe erected a general ſyſtem of duty or moral obligation, conſonant to reaſon, approved by his moſt ſacred and intimate ſenſe, ſuitable to his mixed condition, and confirmed by the experience of mankind. We have alſo traced the final cauſes of his moral faculties and affections to thoſe noble purpoſes they anſwer, with regard both to the private and the public ſyſtem. From this induction it is evident, that there is one order or claſs of duties which man owes to himſelf; another to ſociety; and a third to God.

I. The duties he owes to himſelf are founded chiefly on the defenſive and private paſſions, which prompt him to purſue whatever tends to private good or happineſs, and to avoid whatever tends to private ill or miſery. Among the various goods which allure and ſolicit him, and the various ills which attack or threaten him, "to be intelligent and accurate in ſelecting the one, and rejecting the other, or in preferring the moſt excellent goods, and avoiding the moſt terrible ills, when there is a competition among either, and to be diſcreet in uſing the beſt means to attain the goods and avoid the ills, is what we call prudence." This, in our inward frame, correſponds to ſagacity, or quickneſs of ſenſe, in our outward. "To proportion our defenſive paſſions to our dangers, we call fortitude;" which always implies "a juſt mixture of calm reſentment or animoſity, and well-governed caution." And this firmneſs of mind anſwers to the ſtrength and muſcles of the body. And "duly to adjuſt our private paſſions to our wants, or to the reſpective moment of the good we affect or purſue, we call temperance;" which does therefore always imply, in this large ſenſe of the word, "a juſt balance or command of the paſſions."

II. The 2d claſs of duties ariſes from the public or ſocial affections, "the juſt harmony or proportion of which to the dangers and wants of others, and to the ſeveral relations we bear, commonly goes by the name of juſtice." This includes the whole of our duty to ſociety, to our parents, and the general policy of nature; particularly gratitude, friendſhip, ſincerity, natural affection, benevolence, and the other ſocial virtues: This, being the nobleſt temper, and faireſt complection of the ſoul, correſponds to the beauty and fine proportion of the perſon. The virtues comprehended under the former claſs, eſpecially prudence and fortitude, may likewiſe be transferred to this; and according to the various circumſtances in which they are placed, and the more confined or more extenſive ſphere in which they operate, may be denominated private, œconomical, or civil prudence, fortitude, &c. Theſe direct our conduct with regard to the wants and dangers of thoſe leſſer or greater circles with which they are connected.

III. The 3d *claſs* of duties reſpects the DEITY, and ariſes from the public affections, and the ſeveral glorious relations which he ſuſtains to us as our creator, benefactor, lawgiver, judge, &c. We conſider this ſet of duties in the *laſt* place, becauſe, though prior in dignity and excellency, they ſeem to be laſt in order of time, as thinking it the moſt ſimple and eaſy method to follow the gradual progreſs of nature, as it takes its riſe from individuals, and ſpreads through the ſocial ſyſtem, and ſtill aſcends upwards, till at length it ſtretches to its almighty Parent and Head, and ſo terminates in thoſe duties which are higheſt and beſt. The duties reſulting from theſe relations are, reverence, gratitude, love, reſignation, dependence, obedience, worſhip, praiſe: which, according to the model of our finite capacities, muſt maintain ſome ſort of proportion to the grandeur and perfection of the object whom we venerate, love, and obey. "This proportion or harmony is expreſſed by the general name of piety or devotion," which is always ſtronger or weaker according to the greater or leſs apprehended excellency of its object. This ſublime principle of virtue is the enlivening ſoul which animates the *moral ſyſtem*, and that cement which binds and ſuſtains the other duties which man owes to himſelf or to ſociety.

This then is the general temper and conſtitution of virtue, and theſe are the principal lines or diviſions of duty. To thoſe good diſpoſitions which reſpect the ſeveral objects of our duty, and to all actions which flow from ſuch diſpoſitions, the mind gives its ſanction or teſtimony. And this ſanction or judgment concerning the moral quality, or the goodneſs of actions or diſpoſitions, moraliſts call CONSCIENCE. When it judges of an action that is to be performed, it is called an antecedent conſcience; and when it paſſes ſentence on an action which is performed, it is called a ſubſequent conſcience. The tendency of an action to produce happineſs, or its external conformity to a law, is termed its material goodneſs. But the good diſpoſitions from which an action proceeds, or its conformity to law in every reſpect, conſtitutes its formal goodneſs.

When the mind is ignorant or uncertain about the moment of an action, or its tendency to private or public good; or when there are ſeveral circumſtances in the caſe, ſome of which, being doubtful, render the mind dubious concerning the morality of the action; that is called a doubtful or ſcrupulous conſcience; if it miſtakes concerning theſe, it is called an erroneous conſcience. If the error or ignorance is involuntary or invincible, the action proceeding from that error, or from that ignorance, is reckoned innocent, or not imputable. If the error or ignorance is ſupine or affected, *i. e.* the effect of negligence, or of affectation and wilful inadvertence, the conduct flowing from ſuch error or ſuch ignorance is criminal and imputable. Not to follow one's conſcience, though erroneous and ill-informed, is criminal, as it is the guide of life; and to counteract it, ſhows a depraved and incorrigible ſpirit. Yet to follow an erroneous conſcience is likewiſe criminal, if that error which miſled the conſcience was the effect of inattention, or of any criminal paſſion.

If it be aſked, "How an erroneous conſcience ſhall be rectified, ſince it is ſuppoſed to be the only guide of life, and judge of morals?" we anſwer, in the very ſame way that we would rectify reaſon if at any time it ſhould judge wrong, as it often does, viz. by giving it proper and ſufficient materials for judging right, i. e. by inquiring into the whole ſtate of the caſe, the relations, connections, and ſeveral obligations of the actor, the conſequences and other circumſtances of the action, or the ſurpluſage of private or public good which reſults, or is likely to reſult, from the action, or from the omiſſion of it. If thoſe circumſtances are fairly and fully ſtated, the conſcience will be juſt and impartial in its deciſion: for, by a neceſſary law of our nature, it approves and is well affected to the moral form; and if it ſeems to approve of vice or *immorality*, it is always under the notion or maſk of ſome virtue. So that, ſtrictly ſpeaking, it is not conſcience which errs, for its ſentence is always conformable to the view of the caſe which lies before it; and is juſt, upon the ſuppoſition that the caſe is truly ſuch as it is repreſented to it. All the fault is to be imputed to the agent, who neglects to be better informed, or who, through weakneſs or wickedneſs, haſtens to paſs ſentence from an imperfect evidence.

SECT. II. *Of* MAN'S DUTY *to* HIMSELF: *Of the* NATURE *of* GOOD, *and the* CHIEF GOOD.

EVERY creature, by the conſtitution of his nature, is determined to love himſelf; to purſue whatever tends to his preſervation and happineſs, and to avoid whatever tends to his hurt and miſery. Being endued with ſenſe and perception, he muſt neceſſarily receive pleaſure from ſome objects, and pain from others. Thoſe objects which give pleaſure are called good; and thoſe which give pain, evil. To the former he feels that attraction or motion we call deſire, or love; to the latter, that impulſe we call averſion, or hatred. To objects which ſuggeſt neither pleaſure nor pain, and are apprehended of no uſe to procure the one or ward off the other, we feel neither deſire nor averſion; and ſuch objects are called indifferent. Thoſe objects which do not of themſelves produce pleaſure or pain, but are the means of procuring either, we call uſeful or noxious. Towards them we are affected in a ſubordinate manner, or with an indirect and reflective, rather than a direct and immediate affection. All the original and particular affections of our nature lead us out to, and ultimately reſt in the firſt kind of objects, viz. thoſe which give immediate pleaſure, and which we therefore call good, directly ſo. The calm affection of ſelf-love alone is converſant about ſuch objects as are only conſequentially good, or merely uſeful to ourſelves.

But, beſides thoſe ſorts of objects which we call good, merely and ſolely as they give pleaſure, or are means of procuring it, there is an higher and nobler ſpecies of good, towards which we feel that peculiar movement we call approbation or moral complacency; and which therefore we denominate moral good. Such are our affections, and the conſequent actions to them. The perception of this is, as has been already obſerved, quite diſtinct in kind from the perception of other ſpecies; and though it may be connected with pleaſure or advantage by the benevolent conſtitution of nature, yet it conſtitutes a good independent of that pleaſure and that advantage, and far ſuperior, not in degree only, but in dignity to both. The other, viz. the natural good, conſiſts in obtaining thoſe pleaſures which are adapted to the peculiar ſenſes and paſſions ſuſceptible of them, and is as various as are thoſe ſenſes and paſſions. *This*, viz. the moral good, lies in the right conduct of the ſeveral ſenſes and paſſions, or their juſt proportion and accommodation to their reſpective objects and relations; and this is of a more ſimple and invariable kind.

By our ſeveral ſenſes we are capable of a great variety of pleaſing ſenſations. Theſe conſtitute diſtinct ends or objects ultimately purſuable for their own ſake. To theſe ends, or ultimate objects, correſpond peculiar appetites or affections, which prompt the mind to purſue them. When theſe ends are attained, there it reſts, and looks no farther. Whatever therefore is purſuable, not on its own account, but as ſubſervient or neceſſary to the attainment of ſomething elſe that is intrinſically valuable for its own ſake, be that value ever ſo great or ever ſo ſmall, we call a mean, and not an end. So that ends and means conſtitute the materials or the very eſſence of our happineſs. Conſequently happineſs, i. e. human happineſs, cannot be one ſimple uniform thing in creatures, conſtituted, as we are, with ſuch various ſenſes of pleaſure, or ſuch different capacities of enjoyment. Now the ſame principle, or law of our nature, which determines us to purſue any one end or ſpecies of good, prompts us to purſue every other end or ſpecies of good of which we are ſuſceptible, or to which our Maker has adapted an original propenſity. But, amidſt the great multiplicity of ends or goods which form the various ingredients of our happineſs, we perceive an evident gradation or ſubordination ſuited to that gradation of ſenſes, powers, and paſſions, which prevails in our mixed and various conſtitution, and to that aſcending ſeries of connections which opens upon us in the different ſtages of our progreſſive ſtate.

Thus the goods of the body, or the external ſenſes, ſeem to hold the loweſt rank in this gradation or ſcale of goods. Theſe we have in common with the brutes; and though many men are brutiſh enough to purſue the goods of the body with a more than brutal fury, yet, when at any time they come in competition with goods of an higher order, the unanimous verdict of mankind, by giving the laſt the preference, condemns the firſt to the meaneſt place. Goods conſiſting in exterior ſocial connections, as fame, fortune, power, civil authority, ſeem to ſucceed next, and are chiefly valuable as the means of procuring natural or moral good, but principally the latter. Goods of the intellect are ſtill ſuperior, as taſte, knowledge, memory, judgment, &c. The higheſt are moral goods of the mind, directly and ultimately regarding ourſelves, as command of the appetites and paſſions, prudence, fortitude, benevolence, &c. Theſe are the great objects of our purſuit, and the principal ingredients of our happineſs. Let us conſider each of them as they riſe one above the other in his natural ſeries or ſcale, and touch briefly on our obligations to purſue them.

Thoſe of the body are health, ſtrength, agility, hardineſs, and patience of change, neatneſs, and decency.

Good health, and a regular eaſy flow of ſpirits, are in themſelves ſweet natural enjoyments, a great fund of pleaſure, and indeed the proper ſeaſoning which gives a flavour and poignancy to every other pleaſure. The want of health unfits us for moſt duties of life, and is eſpecially an enemy to the ſocial and human affections, as it generally renders the unhappy ſufferer peeviſh and ſullen, diſguſted at the allotments of Providence, and conſequently apt to entertain ſuſpicious and gloomy ſentiments of its Author. It obſtructs the free exerciſe and full improvement of our reaſon, makes us a burden to our friends, and uſeleſs to ſociety. Whereas the uninterrupted enjoyment of good health is a conſtant ſource of good humour, and good humour is a great friend to openneſs and benignity of heart; enables us to encounter the various ills and diſappointments of life with more courage, or to ſuſtain them with more patience; and, in ſhort, conduces much, if we are otherwiſe duly qualified, to our acting our part in every exigency of life with more firmneſs, conſiſtency, and dignity. Therefore it imports us much to preſerve and improve an habit or enjoyment, without which every other external entertainment is taſteleſs, and moſt other advantages of little avail. And this is beſt done by a ſtrict temperance in diet and regimen, by regular exerciſe, and by keeping the mind ſerene and unruffled by violent paſſions, and unſubdued by intenſe and conſtant labours, which greatly impair and gradually deſtroy the ſtrongeſt conſtitutions.

Strength, agility, hardineſs, and patience of change, ſuppoſe health, and are unattainable without it; but they imply ſomething more, and are neceſſary to guard it, to give us the perfect uſe of life and limbs, and to ſecure us againſt many otherwiſe unavoidable ills. The exerciſe of the neceſſary manual, and of moſt of the elegant arts of life, depends on the ſtrength and agility of body; perſonal dangers, private and public dangers, the demands of our friends, our families, and country, require them; they are neceſſary in war, and ornamental in peace; fit for the employment of a country and a town life, and they exalt the entertainments and diverſions of both. They are chiefly obtained by moderate and regular exerciſe.

Few are ſo much raiſed above want and dependence, or ſo exempted from buſineſs and care, as not to be often expoſed to inequalities and changes of diet, exerciſe, air, climate, and other irregularities. Now, what can be ſo effectual to ſecure one againſt the miſchiefs ariſing from ſuch unavoidable alterations, as hardineſs, and a certain verſatility of conſtitution which can bear extraordinary labours, and ſubmit to great changes, without any ſenſible uneaſineſs or bad conſequences. This is beſt attained, not by an over-great delicacy and minute attention to forms, or by an invariable regularity in diet, hours, and way of living, but rather by a bold and diſcreet latitude of regimen. Beſides, deviations from eſtabliſhed rules and forms of living, if kept within the bounds of ſobriety and reaſon, are friendly to thought and original ſentiments, animate the dull ſcene of ordinary life and buſineſs, and agreeably ſtir the paſſions, which ſtagnate or breed ill-humour in the calms of life.

Neatneſs, cleanlineſs, and decency, to which we may add dignity of countenance and demeanor, ſeem to have ſomething refined and moral in them; at leaſt we generally eſteem them indications of an orderly, genteel, and well-governed mind, conſcious of an inward worth, or the reſpect due to one's nature. Whereas naſtineſs, ſlovenlineſs, aukwardneſs, and indecency, are ſymptoms of ſomething mean, careleſs, and deficient, and betray a mind untaught, illiberal, unconſcious of what is due to one's ſelf or to others. How much cleanlineſs conduces to health, needs hardly to be mentioned; and how neceſſary it is to maintain one's character and rank in life, and to render us agreeable to others as well as to ourſelves, is as evident. There are certain motions, airs, and geſtures, which become the human countenance and form, in which we perceive a comelineſs, openneſs, ſimplicity, gracefulneſs; and there are others, which to our ſenſe of decorum appear uncomely, affected, diſingenuous, and aukward, quite unſuitable to the native dignity of our face and form. The firſt are in themſelves the moſt eaſy, natural, and commodious, give one boldneſs and preſence of mind, a modeſt aſſurance, an addreſs, both awful and alluring; they beſpeak candour and greatneſs of mind, raiſe the moſt agreeable prejudices in one's favour, render ſociety engaging, command reſpect, and often love, and give weight and authority both in converſation and buſineſs; in fine, they are the colouring of virtue, which ſhow it to the greateſt advantage in whomſoever it is; and not only imitate, but in ſome meaſure ſupply it where it is wanting. Whereas the laſt, viz. rudeneſs, affectation, indecorum, and the like, have all the contrary effects; they are burdenſome to one's ſelf, a diſhonour to our nature, and a nuiſance in ſociety. The former qualities or goods are beſt attained by a liberal education, by preſerving a juſt ſenſe of the dignity of our nature, by keeping the beſt and politeſt company, but, above all, by acquiring thoſe virtuous and ennobling habits of mind which are decency in perfection, which will give an air of unaffected grandeur, and ſpread a luſtre truly engaging over the whole form and deportment.

We are next to conſider thoſe goods which conſiſt in exterior ſocial connections, as fame, fortune, civil authority, and power.

The firſt has a two-fold aſpect, as a good pleaſant in itſelf, or gratifying to an original paſſion, and then as expedient or uſeful towards a farther end. Honour from the wiſe and good, on the account of a virtuous conduct, is regaling to a good man; for then his heart re-echoes to the grateful ſound. There are few quite indifferent, even to the commendation of the vulgar. Tho' we cannot approve that conduct which proceeds entirely from this principle, and not from good affection, or love of the conduct itſelf, yet, as it is often a guard and additional motive to virtue in creatures, imperfect as we are, and often diſtracted by interfering paſſions, it might be dangerous to ſuppreſs it altogether, however wiſe it may be to reſtrain it within due bounds, and however laudable to uſe it only as a ſcaffolding to our virtue, which may be taken down when that glorious ſtructure is finiſhed, but hardly till then. To purſue fame for itſelf, is innocent; to regard it only as an auxiliary to virtue, is noble; to ſeek it chiefly as an engine of public uſefulneſs, is ſtill more noble, and highly praiſe-worthy. For though the opinion and breath of men are tranſient and fading things, often obtained without merit, and loſt without demerit; yet as our buſineſs is with men, and as our capacity of ſerving them is generally increaſed in proportion to their eſteem of us, therefore ſound and well eſtabliſhed moral applauſe may and will be, modeſtly, not oſtentatiouſly, ſought after by the good; not indeed as a ſolitary refined ſort of luxury, but as a public and proper inſtrument to ſerve and bleſs mankind. At the ſame time they will learn to deſpiſe that reputation which is founded on rank, fortune, and any other circumſtances or accompliſhments that are foreign to real merit, or to uſeful ſervices done to others, and think that praiſe of little avail which is purchaſed without deſert, and beſtowed without judgment.

Fortune, power, and civil authority, or whatever is called influence and weight among mankind, are goods of the ſecond diviſion, that is, valuable and purſuable only as they are uſeful, or as means to a farther end, viz. procuring or preſerving the immediate objects of enjoyment or happineſs to ourſelves or others. Therefore to love ſuch goods on their own account, and to purſue them as ends, not the means of enjoyment, muſt be highly prepoſterous and abſurd. There can be no meaſure, no limit, to ſuch purſuit; all muſt be whim, caprice, extravagance. Accordingly ſuch appetites, unlike all the natural ones, are increaſed by poſſeſſion, and whetted by enjoyment. They are always precarious, and never without fear, becauſe the objects lie without one's ſelf; they are ſeldom without ſorrow and vexation, becauſe no acceſſion of wealth or power can ſatisfy the poſſeſſors. But if thoſe goods are conſidered only as the materials or means of private or public happineſs, then the ſame obligations which bind us to purſue the latter, bind us likewiſe to purſue the former. We may, and no doubt we ought, to ſeek ſuch a meaſure of wealth as is neceſſary to ſupply all our real wants, to raiſe us above ſervile dependence, and provide us with ſuch conveniences as are ſuited to our rank and condition in life. To be regardleſs of this meaſure of wealth, is to expoſe ourſelves to all the temptations of poverty and corruption; to foreit our natural independency and freedom; to degrade, and conſequently to render the rank we hold, and the character we ſuſtain in ſociety, uſeleſs, if not contemptible. When theſe important ends are ſecured, we ought not to murmur or repine that we poſſeſs no more; yet we are not ſecluded by any obligation, moral or divine, from ſeeking more, in order to give us that happieſt and moſt god-like of all powers, the power of doing good. A ſupine indolence in this reſpect is both abſurd and criminal; abſurd, as it robs us of an inexhauſted fund of the moſt refined and durable enjoyments; and criminal, as it renders us ſo far uſeleſs to the ſociety to which we belong. "That purſuit of wealth which goes beyond the former end, viz. the obtaining the neceſſaries, or ſuch conveniences of life, as, in the eſtimation of reaſon, not of vanity or paſſion, are ſuited to our rank and conditions, and yet is not directed to the latter, viz. the doing good, is what we call avarice." And "that purſuit of power, which, after ſecuring one's ſelf, i. e. having attained the proper independence and liberty of a rational ſocial creature, is not directed to the good of others, is what we call ambition, or the luſt of power." To what extent the ſtrict meaſures of virtue will allow us to purſue either wealth or power, and civil authority, is not perhaps poſſible preciſely to determine. This muſt be left to prudence, and the peculiar character, condition, and other circumſtances of each man. Only thus far a limit may be ſet, that the purſuit of either muſt encroach upon no other duty or obligation which we owe to ourſelves, to ſociety, or to its parent and head. The ſame reaſoning is to be applied to power as to wealth. It is only valuable as an inſtrument of our own ſecurity, and of the free enjoyment of thoſe original goods it may, and often does, adminiſter to us, and as an engine of more extenſive happineſs to our friends, or country, and mankind.

Now the beſt, and indeed the only way to obtain a ſolid and laſting fame, is an uniform inflexible courſe of virtue, the employing one's ability and wealth in ſupplying the wants, and uſing one's power in promoting or ſecuring the happineſs, the rights and liberties of mankind, joined to an univerſal affability and politeneſs of manners. And ſurely one will not miſtake the matter much, who thinks the ſame courſe conducive to the acquiring greater acceſſions, both of wealth and power; epecially if he adds to thoſe qualifications a vigorous induſtry, a conſtant attention to the characters and wants of men, to the conjunctures of times, and continually-varying genius of affairs; and a ſteady intrepid honeſty, that will neither yield to the allurements, nor be over-awed with the terrors, of that corrupt and corrupting ſcene in which we live. We have heard indeed of other ways and means, as fraud, diſſimulation, ſervility, and proſtitution, and the like ignoble arts, by which the men of the world (as they are called, ſhrewd politicians, and men of addreſs!) amaſs wealth, and procure power; but as we wiſh rather to form a man of virtue, an honeſt contented, happy man, we leave to the men of the world their own ways, and permit, unenvied, to reap the fruit of their doings.

The next ſpecies of objects in the ſcale of good, are the goods of the intellect, as knowledge, memory, judgment, taſte, ſagacity, docility, and whatever elſe we call intellectual virtues. Let us conſider them a little, and the means as well as obligations to improve them.

As man is a rational creature, capable of knowing the differences of things and actions; as he not only ſees and feels what is preſent, but remembers what is paſt, and often foreſees what is future;—as he advances from ſmall beginnings by ſlow degrees, and with much labour and difficulty, to knowledge and experience;—as his opinions ſway his paſſions,—as his paſſions influence his conduct,—and as his conduct draws conſequences after it, which extend not only to the preſent but to the future time, and therefore is the principal ſource of his happineſs or miſery; it is evident, that he is formed for intellectual improvements, and that it muſt be of the utmoſt conſequence for him to improve and cultivate his intellectual powers, on which thoſe opinions, thoſe paſſions, and that conduct depend.

But beſides the future conſequences and moment of improving our intellectual powers, their immediate exerciſe on their proper objects yields the moſt rational and refined pleaſures. Knowledge, and a right taſte in the arts of imitation and deſign, as poetry, painting, ſculpture, muſic, architecture, afford not only an innocent, but a moſt ſenſible and ſublime entertainment. By theſe the underſtanding is inſtructed in ancient and modern life, the hiſtory of men and things, the energies and effects of the paſſions, the conſequences of virtue and vice; by theſe the imagination is at once entertained and nouriſhed with the beauties of nature and art, lighted up and ſpread out with the novelty, grandeur, and harmony of the univerſe; and, in fine, the paſſions are agreeably rouſed, and ſuitably engaged, by the greateſt and moſt intereſting objects that can fill the human mind. He who has a taſte formed to theſe ingenious delights, and plenty of materials to gratify it, can never want the moſt agreeable exerciſe and entertainment, nor once have reaſon to make that faſhionable complaint of the tediousneſs of time. Nor can he want a proper ſubject for the diſcipline and improvement of his heart. For, being daily converſant with beauty, order, and deſign, in inferior ſubjects, he bids fair for growing in due time an admirer of what is fair and well-proportioned in the conduct of life and the order of ſociety, which is only order and deſign exerted in their higheſt ſubject. He will learn to transfer the numbers of poetry to the harmony of the mind and of well-governed paſſions; and, from admiring the virtues of others in moral paintings, come to approve and imitate them himſelf. Therefore, to cultivate a true and correct taſte muſt be both our intereſt and our duty, when the circumſtances of our ſtation give leiſure and opportunity for it, and when the doing it is not inconſiſtent with our higher obligations or engagements to ſociety and mankind.

It is beſt attained by reading the beſt books, where good ſenſe has more the aſcendant than learning, and which pertain more to practice than to ſpeculation; by ſtudying the beſt models, i. e. thoſe which profeſs to imitate nature moſt, and approach the neareſt to it, and by converſing with men of the moſt refined taſte, and the greateſt experience in life.

As to the other intellectual goods, what a fund of entertainment muſt it be to inveſtigate the truth and various relations of things, to trace the operations of nature to general laws, to explain by theſe its manifold phenomena, to underſtand that order by which the univerſe is upheld, and that œconomy by which it is governed! to be acquainted with the human mind, the connections, ſubordinations, and uſes of its powers, and to mark their energy in life! how agreeable to the ingenious inquirer, to obſerve the manifold relations and combinations of individual minds in ſociety, to diſcern the cauſes why they flouriſh or decay, and from thence to aſcend, through the vaſt ſcale of beings, to that general mind which preſides over all, and operates unſeen in every ſyſtem and in every age, through the whole compaſs and progreſſion of nature! Devoted to ſuch entertainments as theſe, the contemplative have abandoned every other pleaſure, retired from the body, ſo to ſpeak, and ſequeſtered themſelves from ſocial intercourſe; for theſe, the buſy have often preferred to the hurry and din of life the calm retreats of contemplation; for theſe, when once they came to taſte them, even the gay and voluptuous have thrown up the lawleſs purſuits of ſenſe and appetite, and acknowledged theſe mental enjoyments to be the moſt refined, and indeed the only luxury. Beſides, by a juſt and large knowledge of nature, we recogniſe the perfections of its author; and thus piety, and all thoſe pious affections which depend on juſt ſentiments of his character, are awakened and confirmed; and a thouſand ſuperſtitious fears, that ariſe from partial views of his nature and works, will of courſe be excluded. An extenſive proſpect of human life, and of the periods and revolutions of human things, will conduce much to the giving a certain greatneſs of mind, and a noble contempt to thoſe little competitions about power, honour, and wealth, which diſturb and divide the bulk of mankind, and promote a calm endurance of thoſe inconveniences and ills that are the common appendages of humanity. Add to all, that a juſt knowledge of human nature, and of thoſe hinges upon which the buſineſs and fortunes of men turn, will prevent our thinking either too highly or too meanly of our fellow-creatures, give no ſmall ſcope to the exerciſe of friendſhip, confidence, and good-will, and at the ſame time brace the mind with a proper caution and diſtruſt (thoſe nerves of prudence), and give a greater maſtery in the conduct of private as well as public life. Therefore, by cultivating our intellectual abilities, we ſhall beſt promote and ſecure our intereſt, and be qualified for acting our part in ſociety with more honour to ourſelves, as well as advantage to mankind. Conſequently, to improve them to the utmoſt of our power is our duty; they are talents committed to us by the Almighty Head of ſociety, and we are accountable to him for the uſe of them.

The intellectual virtues are beſt improved by accurate and impartial obſervation; extenſive reading, and unconfined converſe with men of all characters, eſpecially with thoſe who, to private ſtudy, have joined the wideſt acquaintance with the world, and greateſt practice in affairs; but, above all, by being much in the world, and having large dealings with mankind. Such opportunities contribute much to diveſt one of prejudices and a ſervile attachment to crude ſyſtems, to open one's views, and to give that experience on which the moſt uſeful, becauſe the moſt practical, knowledge is built, and from which the ſureſt maxims for the conduct of life are deduced.

The higheſt goods which enter into the compoſition of human happineſs are moral goods of the mind, directly and ultimately regarding ourſelves; as command of the appetites and paſſions, prudence and caution, magnanimity, fortitude, humility, love of virtue, love of God, reſignation, and the like. Theſe ſublime goods are goods by way of eminence, goods recommended and enforced by the moſt intimate and awful ſenſe and conſciouſneſs of our nature; goods that conſtitute the quinteſſence, the very temper of happineſs, that form and complexion of ſoul which renders us approveable and lovely in the ſight of God; goods, in fine, which are the elements of all our future perfection and felicity.

Moſt of the other goods we have conſidered depend partly on ourſelves, and partly on accidents which we can neither foreſee nor prevent, and reſult from cauſes which we cannot influence or alter. They are ſuch goods as we may poſſeſs to-day and loſe to-morrow, and which require a felicity and conſtitution, and talents to attain them in full vigour and perfection, and a felicity of conjunctures to ſecure the poſſeſſion of them. Therefore, did our happineſs depend altogether or chiefly on ſuch tranſitory and precarious poſſeſſions, it were itſelf moſt precarious, and the higheſt folly to be anxious about it. But though creatures, conſtituted as we are, cannot be indifferent about ſuch goods, and muſt ſuffer in ſome degree, and conſequently have our happineſs incomplete without them, yet they weigh but little in the ſcale when compared with moral goods. By the benevolent conſtitution of our nature, theſe are placed within the ſphere of our activity, ſo that no man can be deſtitute of them unleſs he is firſt wanting to himſelf. Some of the wiſeſt and beſt of mankind have wanted moſt of the former goods, and all the external kind, and felt moſt of the oppoſite ills, ſuch at leaſt as ariſe from without; yet by poſſeſſing the latter, viz. the moral goods, have declared they were happy; and to the conviction of the moſt impartial obſervers have appeared happy. The worſt of men have been ſurrounded with every outward good and advantage of fortune, and have poſſeſſed great parts; yet, for want of moral rectitude, have been, and have confeſſed themſelves, exquiſitely miſerable. The exerciſe of virtue has ſupported its votaries, and made them exult in the midſt of tortures almoſt intolerable; nay, how often has ſome falſe form or ſhadow of it ſuſtained even the greateſt villains and bigots under the ſame preſſures! (See RAVILLIAC.) But no external goods, no goods of fortune, have been able to alleviate the agonies or expel the fears of a guilty mind, conſcious of the deſerved hatred and reproach of mankind, and the juſt diſpleaſure of Almighty God.

As the preſent condition of human life is wonderfully chequered with good and ill, and as no height of ſtation, no affluence of fortune, can abſolutely inſure the good, or ſecure againſt the ill, it is evident that a great part of the comfort and ſerenity of life muſt lie in having our minds duly affected with regard to both, *i. e.* rightly attempered to the loſs of the one and the ſufferance of the other. For it is certain that outward calamities derive their chief malignity and preſſure from the inward diſpoſitions with which we receive them. By managing theſe rights, we may greatly abate that malignity and preſſure, and conſequently diminiſh the number, and weaken the moment, of the ills of life, if we ſhould not have it in our power to obtain a large ſhare of its goods. There are particularly three virtues which form this right temper towards ill, and which are of ſingular efficacy, if not totally to remove, yet wonderfully to alleviate, the calamities of life. Theſe are fortitude or patience, humility, and reſignation.

Fortitude is that calm and ſteady habit of mind which either moderates our fears, and enables us bravely to encounter the proſpect of ill, or renders the mind ſerene and invincible under its immediate preſſure. It lies equally diſtant from raſhneſs and cowardice: and though it does not hinder us from feeling, yet prevents our complaining or ſhrinking under the ſtroke. It always includes a generous contempt of, or at leaſt a noble ſuperiority to, thoſe precarious goods of which we can inſure neither the poſſeſſion nor continuance. The man therefore who poſſeſſes this virtue, in this ample ſenſe of it, ſtands upon an eminence, and ſees human things below him: the tempeſt indeed may reach him, but he ſtands ſecure and collected againſt it, upon the baſis of conſcious virtue, which the ſevereſt ſtorms can ſeldom ſhake, and never overthrow.

Humility is another virtue of high rank and dignity, though often miſtaken by proud mortals for meanneſs and puſillanimity. It is oppoſed to pride; which commonly includes in it a falſe or over-rated eſtimation of our own merit, an aſcription of it to ourſelves as its only and original cauſe, an undue compariſon of ourſelves with others, and, in conſequence of that ſuppoſed ſuperiority, an arrogant preference of ourſelves, and a ſupercilious contempt of them. Humility, on the other hand, denotes that modeſt and ingenuous temper of mind which ariſes from a juſt and equal eſtimate of our own advantages, compared with thoſe of others, and from a ſenſe of our deriving all originally from the Author of our being. Its ordinary attendants are mildneſs, a gentle forbearance, and an eaſy unaſſuming humanity with regard to the imperfections and faults of others; virtues rare indeed, but of the faireſt complexion, the proper offspring of ſo lovely a parent, the beſt ornaments of ſuch imperfect creatures as we are, precious in the ſight of God, and which ſweetly allure the hearts of men.

Reſignation is that mild and heroic temper of mind which ariſes from a ſenſe of an infinitely wiſe and good providence, and enables one to acquieſce with a cordial affection in its diſpenſations. This virtue has ſomething very particular in its nature, and ſublime in its efficacy. For it teaches us to bear ill, not only with patience, and as being unavoidable, but it transforms, as it were, ill into good, by leading us to conſider it, and every event that has the leaſt appearance of ill, as a divine diſpenſation, a wiſe and benevolent temperament of things ſubſervient to univerſal good, and of courſe including that of every individual, eſpecially of ſuch as calmly ſtoop to it. In this light, the adminiſtration itſelf, nay, every act of it, becomes an object of affection: the evil diſappears, or is converted into a balm which both heals and nouriſheth the mind. For though the firſt unexpected acceſs of ill may ſurpriſe the ſoul into grief, yet that grief, when the mind calmly reviews its object, changes into contentment, and is by degrees exalted into veneration and a divine compoſure. Our private will is loſt in that of the Almighty, and our ſecurity againſt every real ill reſts on the ſame bottom as the throne of him who lives and reigns for ever.

As the Deity is the ſupreme and inexhauſted ſource of good, on whom the happineſs of the whole creation depends; as he is the higheſt object in nature, and the only object who is fully proportioned to the intellectuel and moral powers of the mind, in whom they ultimately reſt, and find their moſt perfect exerciſe and completion; he is therefore termed the CHIEF GOOD of man, objectively conſidered. And virtue, or the proportioned and vigorous exerciſe of the ſeveral powers and affections on their reſpective objects, as above deſcribed, is, in the ſchools, termed the chief good, formally conſidered, or its formal idea, being the inward temper and native conſtitution of human happineſs.

From the detail we have gone through, the following corollaries may be deduced: 1. It is evident, that the happineſs of ſuch a progreſſive creature as man can never be at a ſtand, or continue fixed and invariable. His finite nature, let it riſe ever ſo high, admits ſtill higher degrees of improvement and perfection: and his progreſſion in improvement or virtue always makes way for a progreſſion in happineſs. So that no poſſible point can be aſſigned in any period of his exiſtence, in which he is perfectly happy, that is, ſo happy as to exclude higher degrees of happineſs. All his perfection is only comparative. 2. It appears that many things muſt conſpire to complete the happineſs of ſo various a creature as man, ſubject to ſo many wants, and ſuſceptible of ſuch different pleaſures. 3. As his capacities of pleaſure cannot be all gratified at the ſame time, and muſt often interfere with each other in ſuch a precarious and fleeting ſtate as human life, or be frequently diſappointed, perfect happineſs, *i. e.* the undiſturbed enjoyment of the ſeveral pleaſures of which we are capable, is unattainable in our preſent ſtate. 4. That ſtate is moſt to be ſought after, in which the feweſt competitions and diſappointments can happen, which leaſt of all impairs any ſenſe of pleaſure, and opens an inexhauſted ſource of the moſt refined and laſting enjoyments. 5. That ſtate which is attended with all thoſe advantages, is a ſtate or courſe of virtue. 6. Therefore, a ſtate of virtue, in which the moral goods of the mind are attained, is the happieſt ſtate.

SECT. III. *Of* DUTIES *to* SOCIETY.

§ I. FILIAL *and* FRATERNAL DUTY. As we have followed the order of nature in tracing the hiſtory of man, and thoſe duties which he owes to himſelf, it ſeems reaſonable to take the ſame method with thoſe he owes to ſociety, which conſtitute the ſecond claſs of his obligations.

His parents are among the earlieſt objects of his attention: he becomes ſooneſt acquainted with them, and ſeems to regard them with a fond affection, the early prognoſtics of his future piety and gratitude. Thus does nature dictate the firſt lines of filial duty, even before a juſt ſenſe of the connection is formed. But when the child is grown up, and has attained to ſuch a degree of underſtanding as to comprehend the moral tie, and be ſenſible of the obligations he is under to his parents; when he looks back on their tender and diſintereſted affection, their inceſſant cares and labours in nurſing, educating, and providing for him, during that ſtate in which he had neither prudence nor ſtrength to care and provide for himſelf, he muſt be conſcious that he owes to them theſe peculiar duties.

1. To reverence and honour them, as the inſtruments of nature in introducing him to life, and to that ſtate of comfort and happineſs which he enjoys; and therefore to eſteem and imitate their good qualities, to alleviate and bear with, and ſpread, as much as poſſible, a decent veil over their faults and weakneſſes.

2. To be highly grateful to them for thoſe favours which it can hardly ever be in his power fully to repay; to ſhow this gratitude by a ſtrict attention to their wants, and a ſolicitous care to ſupply them; by a ſubmiſſive deference to their authority and advice, eſpecially by paying great regard to it in the choice of a wife, and of an occupation; by yielding to, rather than peeviſhly contending with, their humours, as remembering how oft they have been perſecuted by his; and, in fine, by ſoothing their cares, lightening their ſorrows, ſupporting the infirmities of age, and making the remainder of their life as comfortable and joyful as poſſible.

As his brethren and ſiſters are the next with whom he forms a ſocial and moral connection, to them he owes a fraternal regard; and with them he ought to enter into a ſtrict league of friendſhip, mutual ſympathy, advice, aſſiſtance, and a generous intercourſe of kind offices; remembering their relation to common parents, and that brotherhood of nature which unites them into a cloſer community of intereſt and affection.

§ II. MARRIAGE. When man arrives at a certain age, he becomes ſenſible of a peculiar ſympathy and tenderneſs towards the other ſex: the charms of beauty engage his attention, and call forth new and ſofter diſpoſitions than he has yet felt. The many amiable qualities exhibited by a fair outſide, or by the mild allurement of female manners, or which the prejudiced ſpectator, without much reaſoning, ſuppoſes thoſe to include, with ſeveral other circumſtances both natural and accidental, point his view and affection to a particular object, and of courſe contract that general rambling regard, which was loſt and uſeleſs among the undiſtinguiſhed crowd, into a peculiar and permanent attachment to one woman, which ordinarily terminates in the moſt important and delightful connection in life.

Brutes are clothed and generally armed by their ſtructure, eaſily find what is neceſſary to their ſubſiſtence, and ſoon attain their vigour and maturity, ſo that they need the care and aid of their parents but for a ſhort while; therefore they have only vagrant and tranſient amours. But the human race are of a more tender and defenceleſs conſtitution; their infancy and nonage continue longer; they advance ſlowly to ſtrength of body and maturity of reaſon; they need conſtant attention, and a long ſeries of cares and labours, to train them up to decency, virtue, and the various arts of life. The Author of nature has, therefore, provided them with the moſt affectionate and anxious tutors, to aid their weakneſs, to ſupply their wants, and to accompliſh them in thoſe neceſſary arts, even their own parents, on whom he has devolved this mighty charge, rendered agreeable by the moſt alluring and powerful of all ties, parental affection. But unleſs both concur in this grateful taſk, and continue their joint labours, till they have reared up and planted out their young colony, it muſt become a prey to every rude invader, and the purpoſe of the union of the human pair be defeated. Therefore our ſtructure, as well as condition, is an evident indication that the human ſexes are deſtined for a more intimate, for a moral and laſting union. It appears likewiſe, that the principal end of marriage is not to propagate and nurſe up an offspring, but to educate and form minds for the great duties and extenſive deſtinations of life. Society muſt be ſupplied from this original nurſery with uſeful members, and its faireſt ornaments and ſupports.

The mind is apt to be diſſipated by promiſcuous love. When men once indulge in this diſſipation, there is no ſtopping their career; they grow inſenſible to moral attractions; and, by obſtructing or impairing the decent and regular exerciſe of the tender and generous feelings of the human heart, they in time become unqualified for, or averſe to, the forming a moral union of ſouls, which is the cement of ſociety, and the ſource of the pureſt domeſtic joys. Whereas a rational, undepraved love, and its fair companion, marriage, collect a man's views, guide his heart to its proper object, and, by confining his affection to that object, do really enlarge its influence and uſe. Therefore our Creator, ever wiſe and benevolent, by implanting that ſtrong ſympathy between the individuals of each ſex, which urges them to form a particular moral connection, the ſpring of numberleſs domeſtic endearments, has meaſured out to each pair a particular ſphere of action, proportioned to their views, and adapted to their reſpective capacities. Beſides, by intereſting them deeply in the concerns of their own little circle, he has connected them more cloſely with ſociety, which is compoſed of particular families, and bound them down to their good behaviour in that particular community to which they belong. This moral connection is marriage, and this ſphere of action is a family. Of the conjugal alliance the following are the natural laws:

1. Mutual fidelity to the marriage bed. Diſloyalty defeats the very end of marriage; diſſolves the natural cement of the relation; weakens the moral tie, the chief ſtrength of which lies in reciprocation of affection; and, by making the offſpring uncertain, diminiſhes the care and attachment neceſſary to their education.

2. A union of counſels and endeavours to promote the common intereſt of the family, and to educate their common offſpring. To obſerve theſe laws, it is neceſſary to cultivate, both before and during the married ſtate, the ſtricteſt decency and chaſtity of manners, and a juſt ſenſe of what becomes their reſpective characters.

3. The union muſt be inviolable, and for life. The nature of friendſhip, and particularly of this ſpecies of it, the education of their offſpring, and the order of ſociety and of ſucceſſions, which would otherwiſe be extremely perplexed, all require it. To preſerve this union, and render the matrimonial ſtate harmonious and comfortable, a mutual eſteem and tenderneſs, a mutual deference and forbearance, a communication of advice, and aſſiſtance and authority, are abſolutely neceſſary. If each party keep within their proper department, there need be no diſputes about power or ſuperiority, and there will be none. They have no oppoſite, no ſeparate intereſts; and therefore there can be no juſt ground for oppoſition of conduct.

From this detail, and the preſent ſtate of things, in which there is pretty near a parity of numbers of both ſexes, it is evident that polygamy is an unnatural ſtate; and though it ſhould be granted to be more fruitful of children, which however it is not found to be, (ſee MARRIAGE, § 16; and POLYGAMY,) yet it is by no means ſo fit for rearing minds, which ſeems to be as much, if not more, the intention of the Creator, than the propagation of bodies.

§ III. PARENTAL DUTY. The connection of parents with their children is a natural conſequence of the matrimonial connection; and the duties which they owe them reſult as naturally from that connection. The feeble ſtate of children, ſubject to ſo many wants and dangers, requires their inceſſant care and attention; their ignorant and uncultivated minds demand continual inſtruction and culture. Had human creatures come into the world with the full ſtrength of men, and the weakneſs of reaſon and vehemence of paſſions which prevail in children, they would have been too ſtrong or too ſtubborn to have ſubmitted to the government and inſtruction of their parents. But as they were deſigned for a progreſſion in knowledge and virtue, it was proper that the growth of their bodies ſhould keep pace with that of their minds, leſt the purpoſes of that progreſſion ſhould have been defeated. Among other admirable purpoſes which this gradual expanſion of their outward as well as inward ſtructure ſerves, this is one, that it affords ample ſcope to the exerciſe of many tender and generous affections, which fill up the domeſtic life with a beautiful variety of duties and enjoyments; and are of courſe a noble diſcipline for the heart, and a hardy kind of education for the more honourable and important duties of public life.

The above-mentioned weak and ignorant ſtate of children plainly inveſts their parents with ſuch authority and power as is neceſſary to their ſupport, protection, and education; but that authority and power can be conſtrued to extend no farther than is neceſſary to anſwer thoſe ends, and to laſt no longer than that weakneſs and ignorance continue. Whatever power or authority then it may be neceſſary or lawful for parents to exerciſe during the non-age of their children, to aſſume or uſurp the ſame when they have attained the maturity or full exerciſe of their ſtrength and reaſon, would be tyrannical and unjuſt. Hence it is evident, that parents have no right to puniſh the perſon of their children more ſeverely than the nature of their wardſhip requires; much leſs to invade their lives, to encroach upon their liberty, or transfer them as their property to any maſter whatſoever.

The firſt claſs of duties which parents owe their children reſpect their natural life; and theſe comprehend protection, nurture, proviſion, introducing them into the world in a manner ſuitable to their rank and fortune, and the like.

The 2d order of duties regards the intellectual and moral life of their children, or their education in ſuch arts and accompliſhments as are neceſſary to qualify them for performing the duties they owe to themſelves and to others. As this was found to be the principal deſign of the matrimonial alliance, ſo the fulfilling that deſign is the moſt important and dignified of all the parental duties. In order therefore to fit the child for acting his part wiſely and worthily as a man, as a citizen, and a creature of God, both parents ought to combine their joint wiſdom, authority, and power, and each apart to employ thoſe talents which are the peculiar excellency and ornament of their reſpective ſex. The father ought to lay out and ſuperintend their education, the mother to execute and manage the detail of which ſhe is capable. The former ſhould direct the manly exertion of the intellectual and moral powers of his child. His imagination, and the manner of thoſe exertions, are the peculiar province of the latter. The former ſhould adviſe, protect, command, and by his experience, maſculine vigour, and that ſuperior authority which is commonly aſcribed to his ſex, brace and ſtrengthen his pupil for active life, for gravity, integrity, and firmneſs in ſuffering. The buſineſs of the latter is to bend and ſoften her male pupil, by the charms of her converſation, and the ſoftneſs and decency of her manners, for ſocial life, for politeneſs of taſte, and the elegant decorums and enjoyments of humanity; and to improve and refine the tenderneſs and modeſty of her female pupil, and form her to all thoſe mild domeſtic virtues, which are the peculiar characteriſtics and ornaments of her ſex. To conduct the opening minds of their ſweet charges through the ſeveral periods of their progreſs, to aſſiſt them in each period, in throwing out the latent ſeeds of reaſon and ingenuity, and in gaining freſh acceſſions of light and virtue; and at length, with all theſe advantages, to produce the young adventurers upon the great theatre of human life, to play their ſeveral parts in the ſight of their friends, of ſociety, and mankind! See Education.

§ IV. **Of Herile and Servile Duties.** In the natural courſe of human affairs, it muſt neceſſarily happen, that ſome of mankind will live in plenty and opulence, and others be reduced to a ſtate of indigence and poverty. The former need the labours of the latter, and the latter the proviſion and ſupport of the former. This mutual neceſſity is the foundation of that connection, whether we call it moral or civil, which ſubſiſts between maſters and ſervants. He who feeds another has a right to ſome equivalent, the labour of him whom he maintains, and the fruits of it. And he who labours for another has a right to expect that he ſhould ſupport him. But as the labours of a man of ordinary ſtrength are certainly of greater value than mere food and clothing, becauſe they would actually produce more, even the maintenance of a family, were the labourer to employ them in his own behalf; therefore he has an undoubted right to rate and diſpoſe of his ſervice for certain wages above mere maintenance; and if he has incautiouſly diſpoſed of it for the latter only, yet the contract being of the *onerous* kind, he may equitably claim a ſupply of that deficiency. If the ſervice be ſpecified, the ſervant is bound to that only; if not, then he is to be conſtrued as bound only to ſuch ſervices as are conſiſtent with the laws of juſtice and humanity. By the voluntary ſervitude to which he ſubjects himſelf, he forfeits no rights but ſuch as are neceſſarily included in that ſervitude, and is obnoxious to no puniſhment but ſuch as a voluntary failure in the ſervice may be ſuppoſed reaſonably to require. The offspring of ſuch ſervants have a right to that liberty which neither they nor their parents have forfeited.

As to thoſe who, becauſe of ſome heinous offence, as for ſome notorious damage, for which they cannot otherwiſe compenſate, are condemned to perpetual ſervice, they do not, on that account, forfeit all the rights of men; but thoſe, the loſs of which is neceſſary to ſecure ſociety againſt the like offences for the future, or to repair the damage they have done.

With regard to captives taken in war, it is barbarous and inhuman to make perpetual ſlaves of them, unleſs ſome peculiar and aggravated circumſtances of guilt have attended their hoſtility. The bulk of the ſubjects of any government engaged in war may be fairly eſteemed innocent enemies; and therefore they have a right to that clemency which is conſiſtent with the common ſafety of mankind, and the particular ſecurity of that ſociety, againſt which they are engaged. Though ordinary captives have a grant of their lives, yet to pay their liberty as an equivalent is much too high a price. There are other ways of acknowledging or returning the favour, than by ſurrendering what is far dearer than life itſelf. (*Hutcheſon's Mor. Inſt. Lib.* 3.) To thoſe who, under the pretext of the neceſſities of commerce, drive the unnatural trade of bargaining for human fleſh, and conſigning their innocent but unfortunate fellow creatures to eternal ſervitude and miſery, we may addreſs the words of a fine writer; "Let avarice defend it as it will, there is an honeſt reluctance in humanity againſt buying and ſelling, and regarding thoſe of our own ſpecies as our wealth and poſſeſſions." See Slavery.

§ V. **Of Private Social Duties.** Hitherto we have conſidered only the domeſtic œconomical duties, becauſe theſe are firſt in the progreſs of nature. But as man paſſes beyond the little circle of a family, he forms connections with relations, friends, neighbours and others; from whence reſults a new train of duties of the more private ſocial kind, as "friendſhip, chaſtity, courteſy, good-neighbourhood, charity, forgiveneſs, hoſpitality."

Man is admirably formed for particular ſocial attachments and duties. There is a peculiar and ſtrong propenſity in his nature to be affected with the ſentiments and diſpoſitions of others. Men, like certain muſical inſtruments, are ſet to each other, ſo that the vibrations or notes excited in one, raiſe correſpondent notes and vibrations in the others. The impulſes of pleaſure or pain, joy or ſorrow, made on one mind, are, by an inſtantaneous ſympathy, communicated in ſome degree to all: eſpecially when hearts are (as an humane writer expreſſes it) in uniſon of kindneſs; the joy that vibrates in one communicates to the other alſo. We may add, that though joy thus imparted ſwells the harmony, yet grief vibrated to the heart of a friend, and rebounding from thence in ſympathetic notes, melts as it were, and almoſt dies away. All the paſſions, but eſpecially thoſe of the ſocial kind, are contagious; and when the paſſions of one man mingle with thoſe of another, they increaſe and multiply prodigiouſly. There is a moſt moving eloquence in the human countenance, air, voice, and geſture, wonderfully expreſſive of the moſt latent feelings and paſſions of the ſoul, which darts them like a ſubtle flame into the hearts of others, and raiſes correſpondent feelings there: friendſhip, love, good humour, joy, ſpread through every feature, and particularly ſhoot from the eyes their ſofter and fiercer fires with an irreſiſtible energy. In like manner, the oppoſite paſſions of hatred, enmity, ill-humour, melancholy, diffuſe a ſullen and ſaddening air over the face, and, flaſhing from eye to eye, kindle a train of ſimilar paſſions. By theſe, and other admirable pieces of machinery, men are formed for ſociety, and the delightful interchange of friendly ſentiments and duties, to increaſe the happineſs of others by participation, and their own by rebound; and to diminiſh, by dividing, the common ſtock of their miſery.

The firſt emanations of the ſocial principle beyond the bounds of a family lead us to form a nearer conjunction of friendſhip or good-will with thoſe who are anywiſe connected with us by blood or domeſtic alliance. To them our affection commonly exerts itſelf in a greater or leſs degree, according to the nearneſs or diſtance of the relation. And this proportion is admirably ſuited to the extent of our powers, and the indigence of our ſtate; for it is only within thoſe leſſer circles of conſanguinity or alliance that the generality of mankind are able to diſplay their abilities or benevolence, and conſequently to uphold their connection with ſociety, in ſubſerviancy, to a public intereſt. Therefore it is our duty to regard theſe cloſer connections as the next department to that of a family, in which nature has marked out for us a ſphere of activity and uſefulneſs; and to cultivate the kind affections which are the cement of thoſe endearing alliances.

Frequently the view of diſtinguiſhing moral qualities in ſome of our acquaintance may give birth to that more noble connection we call FRIENDSHIP, which is far ſuperior to the alliances of conſanguinity. For theſe are of a ſuperficial, and often of a tranſitory nature, of which, as they hold more of inſtinct than of reaſon, we cannot give ſuch a rational account. But friendſhip derives all its ſtrength and beauty, and the only exiſtence which is durable, from the qualities of the heart, or from virtuous and lovely diſpoſitions. Or, ſhould theſe be wanting, they, or ſome reſemblance of them, are ſuppoſed preſent. Therefore friendſhip may be deſcribed to be, "The union of two ſouls by means of virtue, the common object and cement of their mutual affection." Without virtue, or the ſuppoſition of it, friendſhip is only a mercenary league, an alliance of intereſt, which muſt diſſolve of courſe when that intereſt decays or ſubſiſts no longer. It is not ſo much any particular paſſion, as a compoſition of ſome of the nobleſt feelings and paſſions of the mind. Good ſenſe, a juſt taſte and love of virtue, a thorough candour and benignity of heart, or what we uſually call a good temper, and a generous ſympathy of ſentiments and affections, are the neceſſary ingredients of this virtuous connection. When it is grafted on eſteem, ſtrengthened by habit, and mellowed by time, it yields infinite pleaſure, ever new and ever growing; is a noble ſupport amidſt the various trials and viciſſitudes of life, and an high ſeaſoning to moſt of our other enjoyments. To form and cultivate virtuous friendſhip, muſt be very improving to the temper, as its principal object is virtue, ſet off with all the allurement of countenance, air, and manners, ſhining forth in the native graces of manly honeſt ſentiments and affections, and rendered viſible as it were to the friendly ſpectator in a conduct unaffectedly great and good; and as its principal exerciſes are the very energies of virtue, or its effect and emanations. So that wherever this amiable attachment prevails, it will exalt our admiration and attachment to virtue; and, unleſs impeded in its courſe by unnatural prejudices, run out into a friendſhip to the human race. For as no one can merit, and none ought to uſurp, the ſacred name of friend, who hates mankind; ſo whoever truly loves them, poſſeſſes the moſt eſſential quality of a true friend.

The duties of friendſhip are a mutual eſteem of each other, unbribed by intereſt, and independent of it; a generous confidence as far diſtant from ſuſpicion as from reſerve; an inviolable harmony of ſentiments and diſpoſitions, of deſigns and intereſts; a fidelity unſhaken by the changes of fortune; a conſtancy unalterable by diſtance of time or place; a reſignation of one's perſonal intereſt to thoſe of one's friend; and a reciprocal, unenvious, unreſerved exchange of kind offices. But, amidſt all the exertions of this moral connection, humane and generous as it is, we muſt remember that it operates within a narrow ſphere, and its immediate operations reſpect only the individual; and therefore its particular impulſes muſt ſtill be ſubordinate to a more public intereſt, or be directed and controlled by the more extenſive connections of our nature.

When our friendſhip terminates on any of the other ſex, in whom beauty or agreeableneſs of perſon and external gracefulneſs of manners conſpire to expreſs and heighten the moral charm of a tender honeſt heart, and ſweet, ingenious, modeſt temper, enlightened by good ſenſe; it generally grows into a more ſoft and endearing attachment. When this attachment is improved by a growing acquaintance with the worth of its object, is conducted by diſcretion, and iſſues at length, as it ought to do, in the moral connection above mentioned, (ſee § II.) it becomes the ſource of many amiable duties, of a communication of paſſions and intereſts, of the moſt refined decencies, and of a thouſand nameleſs deep-felt joys of reciprocal tenderneſs and love, flowing from every look, word, and action. Here friendſhip acts with double energy, and the natural conſpires with the moral charms to ſtrengthen and ſecure the love of virtue. As the delicate nature of female honour and decorum, and the inexpreſſible grace of a chaſte and modeſt behaviour, are the ſureſt and indeed the only means of kindling at firſt, and ever after of keeping alive, this tender and elegant flame, and of accompliſhing the excellent ends deſigned by it; to attempt by fraud to violate one, or, under pretence of paſſion, to ſully and corrupt the other, and, by ſo doing, to expoſe the too often credulous and unguarded object, with a wanton cruelty, to the hatred of her own ſex and the ſcorn of ours, and to the loweſt infamy of both, is a conduct not only baſe and criminal, but inconſiſtent with that truly rational and refined enjoyment, the ſpirit and quinteſſence of which is derived from the baſhful and ſacred charms of virtue kept untainted, and therefore ever alluring to the lover's heart.

Courteſy, good-neighbourhood, affability, and the like duties, which are founded on our private ſocial connections, are no leſs neceſſary and obligatory to creatures united in ſociety, and ſupporting and ſupported by each other in a chain of mutual want and dependence. They do not conſiſt in a ſmooth addreſs, an artificial or obſequious air, fawning adulations, or a polite ſervility of manner; but in a juſt and modeſt ſenſe of our own dignity and that of others, and of the reſpect due to mankind, eſpecially to thoſe who hold the higher links of the ſocial chain; in a diſcreet and manly accommodation of ourſelves to the foibles and humours of others; in a ſtrict obſervance of the rules of decorum and civility; but, above all, in a frank obliging carriage, and generous interchange of good deeds rather than words. Such a conduct is of great uſe and advantage, as it is an excellent ſecurity againſt injury, and the beſt claim and recommendation to the eſteem, civility, and univerſal reſpect of mankind. This inferior order of virtues unite the particular members of ſociety more cloſely, and forms the leſſer pillars of the civil fabric; which, in many inſtances, ſupply the unavoidable defects of laws, and maintain the harmony and decorum of ſocial intercourſe, where the more important and eſſential lines of virtue are wanting.

Charity and forgiveneſs are truly amiable and uſeful duties of the ſocial kind. There is a twofold diſtinction of rights commonly taken notice of by moral writers, viz. perfect and imperfect. To fulfil the former, is neceſſary to the being and ſupport of ſociety; to fulfil the latter, is a duty equally ſacred and obligatory, and tends to the improvement and proſperity of ſociety; but as the violation of them is not equally prejudicial to the public good, the fulfilling them is not ſubjected to the cognizance of law, but left to the candour, humanity, and gratitude of individuals. And thus ample ſcope is given to exerciſe all the generoſity, and diſplay the genuine merit and luſtre, of virtue. Thus the wants and misfortunes of others call for our charitable aſſiſtance and ſeaſonable ſupplies. And the good man, unconſtrained by law, and uncontroled by human authority, will cheerfully acknowledge and generouſly ſatisfy this mournful and moving claim; a claim ſupported by the ſanction of heaven, of whoſe bounties he is honoured to be the grateful truſtee. If his own perfect rights are invaded by the injuſtice of others, he will not therefore reject their imperfect right to pity and forgiveneſs, unleſs his grant of theſe ſhould be inconſiſtent with the more extenſive rights of ſociety, or the public good. In that caſe he will have recourſe to public juſtice and the laws, and even then he will proſecute the injury with no unneceſſary ſeverity, but rather with mildneſs and humanity. When the injury is merely perſonal, and of ſuch a nature as to admit of alleviations, and the forgiveneſs of which would be attended with no worſe conſequences, eſpecially of a public kind, the good man will generouſly forgive his offending brother. And it is his duty to do ſo, and not to take private revenge, or retaliate evil for evil. For though reſentment of injury is a natural paſſion, and implanted, as was obſerved above (See *Part* I. *Sect.* II.) for wiſe and good ends; yet, conſidering the manifold partialities which moſt men have for themſelves, were every one to act as judge in his own cauſe, and to execute the ſentence dictated by his own reſentment, it is evident that mankind would paſs all bounds in their fury, and the laſt ſufferer be provoked in his turn to make full repriſals. So that evil, thus encountering with evil, would produce one continued ſeries of violence and miſery, and render ſociety intolerable, if not impracticable. Therefore, where the ſecurity of the individual, or the good of the public, does not require a proportionable retaliation, it is agreeable to the general law of benevolence, and to the particular end of the paſſion, (which is to prevent injury and the miſery occaſioned by it,) to forgive perſonal injuries, or not to return evil for evil. This duty is one of the noble refinements which CHRISTIANITY has made upon the general maxims and practice of mankind, and enforced, with a peculiar ſtrength and beauty, by ſanctions no leſs alluring than awful. And indeed the practice of it is generally its own reward; by expelling from the mind the moſt dreadful intruders upon its repoſe, thoſe rancorous paſſions which are begot and nurſed by reſentment, and by diſarming and even ſubduing every enemy one has, except ſuch as have nothing left of men but the outward form.

The moſt enlarged and humane connection of the private kind ſeems to be the hoſpitable alliance, from which flow the amiable and diſintereſted duties we owe to ſtrangers. If the exerciſe of paſſions of the moſt private and inſtinctive kind is beheld with moral approbation and delight, how lovely and venerable muſt thoſe appear which reſult from a calm philanthropy, are founded in the common rights and connections of ſociety, and embrace men, not of a particular ſect, party, or nation, but all in general without diſtinction, and without any of the little partialities of ſelf-love.

§ VI. *Of* SOCIAL DUTIES *of the* COMMERCIAL KIND. The next order of connections, are thoſe which ariſe from the wants and weakneſs of mankind, and from the various circumſtances in which their different ſituations place them. Theſe we may call commercial connections, and the duties which reſult from them, commercial duties, as juſtice, fair-dealing, ſincerity, fidelity to compacts, and the like.

Though the works of the Almighty are all perfect, yet there is a manifeſt diſtinction among them. All ſuch as lie beyond the reach of human ſkill and power, are completely finiſhed. Theſe man may deſign after and imitate, but he can never rival them, nor add to their beauty or perfection. Such are the forms and ſtructure of vegetables, animals, and many of their productions, as the honey-comb, the ſpider's web, and the like. There are others purpoſely left unfiniſhed, as it were, in order to exerciſe the ingenuity and power of man. A rich profuſion of materials of every kind is produced for his conveniency and uſe; but many of them are rude and unpoliſhed, or not to be come at without art and labour. Theſe therefore he muſt apply, to adapt them to his uſe, and to enjoy them to perfection. Thus an infinite variety of herbs, grain, foſſils, minerals, wood, water, earth, air, and a thouſand other crude materials, is naturally produced to ſupply his numerous wants. But he muſt ſow, plant, dig, refine, poliſh, build, and manufacture theſe various productions to obtain even the neceſſaries, and much more the conveniences and elegancies of life. Theſe then are the price of his labour and induſtry, without which he will enjoy nothing. But as the wants of mankind are many, and the ſingle ſtrength of individuals ſmall, they could hardly find the neceſſaries, much leſs the conveniences of life, without uniting their ingenuity and ſtrength in acquiring theſe, and without a mutual intercourſe of good offices. Some men are better formed for ſome kinds of ingenity and labour, and others for other kinds; and different ſoils and climates are enriched with different productions; ſo that men, by exchanging the produce of their reſpective labours, and ſupplying the wants of one country with the ſuperfluities of another, do in effect diminiſh the labours of each, and increaſe the abundance of all. This is the foundation of all commerce, or exchange of commodities and goods, one with another; to facilitate which, men have contrived different ſpecies of COIN, or MONEY, as a common ſtandard, by which to eſtimate the comparative values of their reſpective goods. But to render commerce ſure and effectual, juſtice, fair-dealing, ſincerity, and fidelity to compacts, are abſolutely neceſſary.

JUSTICE, or fair-dealing, or, in other words, a diſpoſition to treat others as we would be treated by them, is a virtue of the firſt importance, and inſeparable from the virtuous character. It is the cement of ſociety, or that pervading ſpirit which connects its members, inſpires its various relations, and maintains the order and ſubordination of each part to the whole. Without it, ſociety would become a den of thieves and banditti, hating and hated, devouring and devoured, by one another.

Here it may be proper to take a view of Mr HUME's ſuppoſed caſe of the ſenſible knave and the worthleſs miſer, (See *Hiſtory*,) and conſider what would be the duty of the former according to the theory of thoſe moraliſts who do not hold the will of God to be the criterion or rule, and everlaſting happineſs the motive, of human virtue. The truth of the obſervation above made cannot be controverted, that, by ſecretly purloining from the coffers of a miſer part of that gold which there lies uſeleſs, a man might, in particular circumſtances, promote the good of ſociety, without doing injury to a ſingle individual; and it was hence inferred, that in ſuch circumſtances, it would be no duty to abſtain from theft, were local utility ariſing from particular conſequences the real criterion or ſtandard of juſtice. Very different, however, is the concluſion which muſt be drawn by thoſe who conſider the natural tendency of actions, if univerſally performed, as the criterion of their merit or demerit in the ſight of God. Such philoſophers attend, not to the particular conſequences of a ſingle action in any given caſe, but to the general conſequences of the principle from which it flows, if that principle were univerſally adopted. You cannot (ſay they) permit one action and forbid another, without ſhowing a difference between them. The ſame ſort of actions, therefore, muſt be generally permitted or generally forbidden. But were every man allowed to aſcertain for himſelf the circumſtance in which the good of ſociety would be promoted, by ſecretly abſtracting the ſuperfluous wealth of a worthleſs miſer, it is plain that no property could be ſecure; that all incitements to induſtry would be at once removed; and that, whatever might be the immediate conſequences of any particular theft, the general and neceſſary conſequences of the principle by which it was authorized muſt ſoon prove fatal. Were one man to purloin part of the riches of a real miſer, and to conſider his conduct as vindicated by his intention to employ thoſe riches in acts of generoſity, another might by the ſame ſort of caſuiſtry think himſelf authorized to appropriate to himſelf part of his wealth; and thus theft would ſpread though all orders of men, till ſociety were diſſolved into ſeparate, hoſtile, and ſavage families, mutually dreading and ſhunning each other. The general conſequences, therefore, of encroaching upon private property, tend evidently to univerſal miſery.

On the other hand, indeed, the particular and immediate conſequences of that principle which conſiders every man's property as ſacred, may in ſome caſes, ſuch as that ſuppoſed, be in a ſmall degree injurious to a few families in the neighbourhood of the miſer and the knave. But that injury can never be of long duration; and it is infinitely more than counterbalanced by the general good conſequences of the principle from which it accidentally reſults; for theſe conſequences extend to all nations and to all ages. Without a ſacred regard to property, there could neither be arts, nor induſtry, nor confidence among men, and happineſs would be for ever baniſhed from this world. But the communication of happineſs being the end which God had in view when he created the world, and all men ſtanding in the ſame relation to him, it is impoſſible to ſuppoſe that he does not approve, and will not ultimately reward, thoſe voluntary actions of which the natural tendency is to increaſe the ſum of human happineſs; or that he does not diſapprove, and will not ultimately puniſh, thoſe which naturally tend to aggravate human miſery. The concluſion is, that a ſtrict adherence to the principle of juſtice is univerſally, and in all poſſible circumſtances, a duty from which we cannot deviate without offending our Creator, and ultimately bringing miſery upon ourſelves.

Sincerity, or veracity, in our words and actions, is another duty of great importance to ſociety, being one of the great bands of mutual intercourſe, and the foundation of mutual truſt. Without it, ſociety would be the dominion of miſtruſt, jealouſy, and fraud, and converſation a traffic of lies and diſſimulation. It includes in it a conformity of our words with our ſentiments, a correſpondence between our actions and diſpoſitions, a ſtrict regard to truth, and an irreconcilable abhorrence of falſehood. It does not indeed require, that we expoſe our ſentiments indiſcreetly, or tell all the truth in every caſe; but certainly it does not and cannot admit the leaſt violation of truth or contradiction to our ſentiments. For if theſe bounds are once paſſed, no poſſible limit can be aſſigned where the violation ſhall ſtop, and no pretence of private or public good can poſſibly counterbalance the ill conſequences of ſuch a violation.

Fidelity to promiſes, compacts, and engagements, is likewiſe a duty of ſuch importance to the ſecurity of commerce and interchange of benevolence among mankind, that ſociety would ſoon grow intolerable without the ſtrict obſervance of it. HOBBES, and others who follow the ſame track, have taken a wonderful deal of pains to puzzle this ſubject, and to make all the virtues of this ſort merely artificial, and not at all obligatory, antecedent to human conventions. No doubt compacts ſuppoſe people who make them; and promiſes perſons to whom they are made; and therefore both ſuppoſe ſome ſociety, more or leſs, between thoſe who enter into theſe mutual engagements. But is not a compact or promiſe binding, till men have agreed that they ſhall be binding? or are they only binding, becauſe it is our intereſt to be bound by them, or to fulfil them? Do not we highly approve the man who fulfils them, even though they ſhould prove to be againſt his intereſt? and do we not condemn him as a knave who violates them on that account? A promiſe is a voluntary declaration by words, or by an action equally ſignificant, of our reſolution to do ſomething in behalf of another, or for his ſervice. When it is made, the perſon who makes it is by all ſuppoſed under an obligation to perform it. And he to whom it is made may demand the performance as his right. That perception of obligation is a ſimple idea, and is on the ſame footing as our other moral perceptions, which may be deſcribed by inſtances, but cannot be defined. Whether we have a perception of ſuch obligation quite diſtinct from the intereſt, either public or private, that may accompany the fulfilment of it, muſt be referred to the conſcience of every individual. And whether the mere ſenſe of that obligation, apart from its concomitants, is not a ſufficient inducement or motive to keep one's promiſe, without having recourſe to any ſelfiſh principle of our nature, muſt be likewiſe appealed to the conſcience of every honeſt man.

It is, however, proper to remark, that in this, as in all other inſtances, our chief good is combined with our duty. "Men act from expectation. Expectation is in moſt caſes determined by the aſſurances and engagements which we receive from others. If no dependence could be placed upon theſe aſſurances, it would be impoſſible to know what judgment to form of many future events, or how to regulate our conduct with regard to them. Confidence, therefore, in promiſes, is eſſential to the intercourſe of human life, becauſe without it the greateſt part of our conduct would proceed upon chance. But there could be no confidence in promiſes, if men were not obliged to perform them." Thoſe, therefore, who allow not to the perceptions of the moral ſenſe all that authority which we attribute to them, muſt ſtill admit the obligation to perform promiſes; becauſe ſuch performance may be ſhown to be agreeable to the will of God, in the very ſame manner in which upon their principles we have ſhown the uniform practice of juſtice to be ſo.

Fair-dealing and fidelity to compacts require that we take no advantage of the ignorance, paſſion, or incapacity of others, from whatever cauſe that incapacity ariſes;—that we be explicit and candid in making bargains, juſt and faithful in fulfilling our part of them. And if the other party violates his engagements, redreſs is to be ſought from the laws, or from thoſe who are entruſted with the execution of them. In fine, the commercial virtues and duties require that we not only do not invade, but maintain the rights of others;—that we be fair and impartial in transferring, bartering, or exchanging property, whether in goods or ſervice; and be inviolably faithful to our word and our engagements, where the matter of them is not criminal, and where they are not extorted by force. See PROMISE.

§ VII. SOCIAL DUTIES *of the* POLITICAL KIND. We are now arrived at the laſt and higheſt order of duties reſpecting ſociety, which reſult from the exerciſe of the moſt generous and heroic affections, and are founded on our moſt enlarged connections.

The ſocial principle in man is of ſuch an expanſive nature, that it cannot be confined within the circuit of a family, of friends, or a neighbourhood; it ſpreads into wider ſyſtems, and draws men into larger confederacies, communities, and commonwealths. It is in theſe only that the ſuperior powers of our nature attain the higheſt improvement and perfection of which they are capable. Theſe principles hardly find objects in the ſolitary ſtate of nature. There the principle of action riſes no higher at fartheſt than natural affection towards one's offspring. There perſonal or family wants entirely engroſs the creature's attention and labour, and allow no leiſure, or, if they did, no exerciſe for views and affections of a more enlarged kind. In SOLITUDE all are employed in the ſame way, in providing for the animal life. And even after their utmoſt labour and care, ſingle and unaided by the induſtry of others, they find but a ſorry ſupply of their wants, and a feeble precarious ſecurity againſt dangers from wild beaſts; from inclement ſkies and ſeaſons; from the miſtakes or petulant paſſions of their fellow creatures; from their preference of themſelves to their neighbours; and from all the little exorbitances of ſelf-love. But in SOCIETY, the mutual aids which men give and receive ſhorten the labours of each, and the combined ſtrength and reaſon of individuals give ſecurity and protection to the whole body. There is both a variety and ſubordination of genius among mankind. Some are formed to lead and direct others, to contrive plans of happineſs for individuals, and of government for communities: to take part in a public intereſt, invent laws and arts, and ſuperintend their execution; and, in ſhort, to refine and civilize human life. Others, who have not ſuch good heads, may have honeſt hearts, a truly public ſpirit, love of liberty, hatred of corruption and tyranny, a generous ſubmiſſion to laws, order, and public inſtitutions, and an extenſive philanthropy. And others, who have none of thoſe capacities either of heart or head, may be well formed for manual exerciſes and bodily labour. The former of theſe principles has no ſcope in ſolitude, where a man's thoughts and concerns do all either centre in himſelf or extend no farther than a family; into which little circle all the duty and virtue of the ſolitary mortal is crowded. But ſociety finds proper objects and exerciſes for every genius, and the nobleſt objects and exerciſes for the nobleſt geniuſes, and for the higheſt principles in the human conſtitution; particularly for that warmeſt and moſt divine paſſion which God hath kindled in our boſoms, the inclination of doing good, and honouring our nature; which may find here both employment and the moſt exquiſite ſatisfaction. In ſociety, a man has not only more leiſure, but better opportunities, of applying his talents with much greater perfection and ſucceſs, eſpecially as he is furniſhed with the joint advice and aſſiſtance of his fellow creatures, who are more cloſely united one with the other, and ſuſtain a common relation to the ſame moral ſyſtem or community. This then is an object proportioned to his moſt enlarged ſocial affections; and in ſerving it he finds ſcope for the exerciſe and refinement of his higheſt intellectual and moral powers. Therefore ſociety, or a ſtate of civil government, reſts on theſe two principal pillars, "That in it we find ſecurity againſt thoſe evils which are unavoidable in ſolitude—and obtain thoſe goods, ſome of which cannot be obtained at all, and others not ſo well, in that ſtate where men depend ſolely on their individual ſagacity and induſtry."

From this ſhort detail it appears, that man is a ſocial creature, and formed for a ſocial ſtate; and that ſociety, being adapted to the higher principles and deſtinations of his nature, muſt of neceſſity be his NATURAL ſtate.

The duties ſuited to that ſtate, and reſulting from thoſe principles and deſtinations, or, in other words, from our ſocial paſſions and ſocial connections, or relation to a public ſyſtem, are love of our country, reſignation, and obedience to the laws, public ſpirit, love of liberty, ſacrifice of life, and all to the public, and the like.

PATRIOTISM, or love of our country, is one of the nobleſt paſſions that can warm and animate the human breaſt. It includes all the limited and particular affections to our parents, friends, neighbours, fellow-citizens, and countrymen. It ought to direct and limit their more confined actions within their proper and natural bounds, and never let them encroach on thoſe ſacred and firſt regards we owe to the great public to which we belong. Were we ſolitary creatures, detached from the reſt of mankind, and without any capacity of comprehending a public intereſt, or without affections leading us to deſire and purſue it, it would not be our duty to mind it, nor criminal to neglect it. But as we are PARTS of the public ſyſtem, and are not only capable of taking in large views of its intereſts, but by the ſtrongeſt affections connected with it, and prompted to take a ſhare of its concerns, we are under the moſt ſacred ties to proſecute its ſecurity and welfare with the utmoſt ardour, eſpecially in times of public trial. This love of our country does not import an attachment to any particular ſoil, climate, or ſpot of earth, where perhaps we firſt drew our breath, though thoſe natural ideas are often aſſociated with the moral ones, and, like external ſigns or ſymbols, help to aſcertain and bind them; but it imports an affection to that moral ſyſtem or community, which is governed by the ſame laws and magiſtrates, and whoſe ſeveral parts are variouſly connected one with the other, and all united upon the bottom of a common intereſt. Perhaps indeed every member of the community cannot comprehend ſo large an object, eſpecially if it extends through large provinces, and over vaſt tracts of land; and ſtill leſs can he form ſuch an idea, if there is no public, i. e. if all are ſubject to the caprice and unlimited will of *one man*; but the preference the generality ſhow to their native country, the concern and longing after it, which they expreſs when they have been long abſent from it; the labours they undertake and ſufferings they endure to ſave or ſerve it, and the peculiar attachment they have to their countrymen, evidently demonſtrate that the paſſion is natural, and never fails to exert itſelf when it is fairly diſengaged from foreign clogs, and is directed to its proper object. Wherever it prevails in its genuine vigour and extent, it ſwallows up all ſordid and ſelfiſh regards; it conquers the love of eaſe, power, pleaſure, and wealth; nay, when the amiable partialities of friendſhip, gratitude, private affection, or regards to a family, come in competition with it, it will teach us bravely to ſacrifice all, in order to maintain the rights, and promote or defend the honour and happineſs of our country.

RESIGNATION and obedience to the laws and orders of the ſociety to which you belong, are political

litical duties neceſſary to its very being and ſecurity, without which it muſt ſoon degenerate into a ſtate of licentiouſneſs and anarchy. The welfare, nay, the nature of civil ſociety, requires, that there ſhould be a ſubordination of orders, or diverſity of ranks, and conditions in it;—that certain men, or orders of men, be appointed to ſuperintend and manage ſuch affairs as concern the public ſafety and happineſs;—that all have their particular provinces aſſigned them;—that ſuch a ſubordination be ſettled among them as none of them may interfere with another; and finally, that certain rules or common meaſures of action be agreed on, by which each is to diſcharge his reſpective duty to govern or be governed, and all may concur in ſecuring the order, and promoting the felicity of the whole political body. Thoſe rules of action are the laws of the community; and thoſe different orders are the ſeveral officers or magiſtrates appointed by the public to explain them, and ſuperintend or aſſiſt in their execution. In conſequence of this, it is the duty of each individual to obey the laws enacted; to ſubmit to the executors of them with all due deference and homage, according to their reſpective ranks and dignity, as to the keepers of the public peace, and the guardians of public liberty; to maintain his own rank, and perform the functions of his own ſtation, with diligence, fidelity, and incorruption. The ſuperiority of the higher orders, or the authority with which the ſtate has inveſted them, entitle them, eſpecially if they employ their authority well, to the obedience and ſubmiſſion of the lower, and to a proportionable honour and reſpect from all. The ſubordination of the lower ranks claims protection, defence, and ſecurity from the higher. And the laws, being ſuperior to all, being the laſt reſort, beyond which there is no deciſion or appeal.

PUBLIC SPIRIT, heroic zeal, love of liberty, and the other political duties, do, above all others, recommend thoſe who practiſe them to the admiration and homage of mankind; becauſe, as they are the offſpring of the nobleſt minds, ſo are they the parents of the greateſt bleſſings to ſociety. Yet, exalted as they are, it is only in equal and free governments where they can be exerciſed and have their due effect. For there only does a true public ſpirit prevail, and there only is the public good made the ſtandard of the civil conſtitution. As the end of ſociety is the common intereſt and welfare of the people aſſociated, this end muſt of neceſſity be the ſupreme law or common ſtandard, by which the particular rules of action of the ſeveral members of the ſociety towards each other are to be regulated. But a common intereſt can be no other than that which is the reſult of the common reaſon or common feelings of all. Private men, or a particular order of men, have intereſts and feelings peculiar to themſelves, and of which they may be good judges; but theſe may be ſeparate from, and often contrary to the intereſt and feelings of the reſt of the ſociety; and therefore they can have no right to make, and much leſs to impoſe, laws on their fellow citizens, inconſiſtent with, and oppoſite to, thoſe intereſts and thoſe feelings. Therefore, a ſociety, a government, or real public, truly worthy the name, and not a confederacy of banditti, a clan of lawleſs ſavages, or a band of ſlaves under the whip of a maſter, muſt be ſuch a one as conſiſts of freemen, chuſing or conſenting to laws themſelves; or, ſince it often happens that they cannot aſſemble and act in a collective body, delegating a ſufficient number of REPRESENTATIVES, *i. e.* ſuch a number as ſhall moſt fully comprehend, and moſt equally repreſent, their common feelings and common intereſts, to digeſt and vote laws for the conduct and controul of the whole body, the moſt agreeable to thoſe common feelings and common intereſts.

A ſociety thus conſtituted by common reaſon, and formed on the plan of a common intereſt, becomes immediately an object of public attention, veneration, obedience, and inviolable attachment, which ought neither to be ſeduced by bribes, nor awed by terrors; an object, in fine, of all thoſe extenſive and important duties which ariſe from ſo glorious a confederacy. To watch over ſuch a ſyſtem: to contribute all he can to promote its good by his reaſon, his ingenuity, his ſtrength, and every other ability, whether natural or acquired; to reſiſt, and, to the utmoſt of his power, defeat every incroachment upon it, whether carried on by a ſecret corruption or open violence; and to ſacrifice his eaſe, wealth, power, nay life itſelf, and what is dearer ſtill, his family and friends, to defend or ſave it, is the duty, the honour, the intereſt, and the privilege of every citizen; it will make him venerable and beloved while he lives, be lamented and honoured if he falls in ſo glorious a cauſe, and tranſmit his name with immortal renown to the lateſt poſterity.

As the PEOPLE are the fountain of power and authority, the original ſeat of majeſty, the authors of laws, and the creators of officers to execute them; if they ſhall find the power they have conferred abuſed by their truſtees, their majeſty violated by tyranny or by uſurpation, their authority proſtituted to ſupport violence or ſcreen corruption, the laws grown pernicious through accidents unforeſeen or unavoidable, or rendered ineffectual through the infidelity and corruption of the executors of them; then it is their right, and what is their right is their duty, to reſume that delegated power, and call their truſtees to an account; to reſiſt the uſurpation, and extirpate the tyranny; to reſtore their ſullied majeſty and proſtituted authority; to ſuſpend, alter, or abrogate thoſe laws, and puniſh their unfaithful and corrupt officers. Nor is it the duty only of the united body; but every member of it ought, according to his reſpective rank, power, and weight in the community, to concur in advancing and ſupporting theſe glorious deſigns.

RESISTANCE, therefore, being undoubtedly lawful in extraordinary emergencies, the queſtion, among good reaſoners, can only be with regard to the degree of neceſſity which can juſtify reſiſtance, and render it expedient or commendable. And here we muſt acknowledge, that, with Mr Hume, "we ſhall always incline to their ſide that draw the bond of allegiance very cloſe, and who conſider an infringement of it as the laſt refuge in deſperate caſes, when the public is in the higheſt danger from violence and tyranny. For beſides the miſchiefs of a civil war, which commonly attends inſurrection, it is certain, that where a diſpoſition to rebellion appears among any people, it is one chief cauſe of tyranny in the rulers, and forces them into many violent meaſures, which, had every one been inclined to ſubmiſſion and obedience, they would never have embraced. Thus the TYRANNICIDE, or aſſaſſination approved of by ancient maxims, inſtead of keeping tyrants and uſurpers in awe, made them ten times more fierce and unrelenting; and is now juſtly aboliſhed on that account by the laws of nations, and univerſally condemned, as a baſe and treacherous method of bringing to juſtice thoſe diſturbers of ſociety." *Eſſays Vol.* I.

SECT. IV. *Of* DUTY *to* GOD.

OF all the relations which the human mind ſuſtains, that which ſubſiſts between the CREATOR and his creatures, the ſupreme LAWGIVER and his ſubjects, is the higheſt and the beſt. This relation ariſes from the nature of a creature in general, and the conſtitution of the human mind in particular; the nobleſt powers and affections of which point to an univerſal mind, and would be imperfect and abortive without ſuch a direction. How lame then muſt that ſyſtem of morals be, which leaves a DEITY out of the queſtion! How diſconſolate, and how deſtitute of its firmeſt ſupport!

It does not appear, from any true hiſtory or experience of the mind's progreſs, that any man, by any formal deduction of his diſcurſive power, ever reaſoned himſelf into the belief of a God. Whether ſuch a belief is derived from father to ſon, and from one man to another, in the way of tradition, or is ſuggeſted to us in conſequence of an immutable law of our nature, on beholding the auguſt aſpect and beautiful order of the univerſe, we will not determine. What ſeems moſt agreeable to experience is, that a ſenſe of its beauty and grandeur, and the admirable fitneſs of one thing to another in its vaſt apparatus, leads the mind neceſſarily and unavoidably to a perception of a deſign, or of a deſigning cauſe, the origin of all, by a progreſs as ſimple and natural as that by which a beautiful picture or a fine building ſuggeſts to us the idea of an excellent artiſt. For it ſeems to hold univerſally true, that wherever we diſcern a tendency or co-operation of things towards a certain end, or producing a common effect, there, by a neceſſary law of aſſociation, we apprehend deſign, a deſigning energy or cauſe. No matter whether the objects are natural or artificial, ſtill that ſuggeſtion is unavoidable, and the connection between the effect and its adequate cauſe obtrudes itſelf on the mind, and it requires no nice ſearch or elaborate deduction of reaſon to trace or prove that connection. We are particularly ſatisfied of its truth in the ſubject before us by a kind of direct intuition; attending to the maxim of the ſchools, "That there cannot be an infinite ſeries of cauſes and effects producing and produced by one another." That maxim is familiar only to metaphyſicians; but all men of ſound underſtanding are led to believe the exiſtence of a God. We are conſcious of our exiſtence, of thought, ſentiment, and paſſion, and ſenſible withal that theſe came not of ourſelves; therefore we immediately recogniſe a PARENT MIND, an original intelligence, from whom we borrowed thoſe little portions of thought and activity. And while we not only feel kind affections in ourſelves, and diſcover them in others, but likewiſe behold around us ſuch a number and variety of creatures, endued with natures nicely adjuſted to their ſeveral ſtations and œconomies, ſupporting and ſupported by each other, and all ſuſtained by a common order of things, and ſharing different degrees of happineſs according to their reſpective capacities, we are naturally and neceſſarily led up to the Father of ſuch a numerous offspring, the fountain of ſuch wide-ſpread happineſs. As we conceive this Being before all, above all, and greater than all, we naturally, and without reaſoning, aſcribe to him every kind of perfection, wiſdom, power, and goodneſs without bounds, exiſting through all time, and pervading all ſpace. We apply to him thoſe glorious epithets of our Creator, Preſerver, Benefactor, the ſupreme Lord and Lawgiver of the whole ſociety of rational and intelligent creatures. Not only the imperfections and wants of our being and condition, but ſome of the nobleſt inſtincts and affections of our minds, connect us with this great and univerſal Being. The mind, in its progreſs from object to object, from one character and proſpect of beauty to another, finds ſome blemiſh or deficiency in each, and ſoon exhauſts or grows weary and diſſatisfied with its ſubject; it ſees no character of excellency among men equal to that pitch of eſteem which it is capable of exerting; no object within the compaſs of human things adequate to the ſtrength of its affection: nor can it ſtay any where in this ſelf-expanſive progreſs, or find repoſe after its higheſt flights, till it arrives at a Being of unbounded greatneſs and worth, on whom it may employ its ſublimeſt powers without exhauſting the ſubject, and give ſcope to the utmoſt force and fulneſs of its love without ſatiety or diſguſt. So that the nature of this being correſponds to the nature of man; nor can his intelligent and moral powers obtain their entire end, but on the ſuppoſition of ſuch a Being, and without a real ſympathy and communication with him. The native propenſity of the mind to reverence whatever is great and wonderful, finds a proper object of homage in him who ſpread out the heavens and the earth, and who ſuſtains and governs the whole. The admiration of beauty, the love of order, and the complacency we feel in goodneſs, muſt riſe to the higheſt pitch, and attain the full vigour and joy of their operations, when they unite in him who is the ſum and ſource of all perfection.

It is evident from the ſlighteſt ſurvey of morals, that how punctual ſoever one may be in performing the duties which reſult from our relations to mankind, yet to be quite deficient in performing thoſe which ariſe from our relation to the ALMIGHTY, muſt argue a ſtrange perverſion of reaſon, or depravity of heart. If imperfect degrees of worth attract our veneration, and if the want of it would imply an inſenſibility, or, which is worſe, an averſion to merit, what lameneſs of affection or immorality of character muſt it be to be unaffected with, and much more to be ill affected to, a Being of ſuperlative worth! To love ſociety, or particular members of it, and yet to have no ſenſe of our connection with its Head, no affection to our common Parent and Benefactor; to be concerned about the approbation or cenſure of our fellow-creatures, and yet to feel nothing of this kind towards him who ſees and weighs our actions with unerring wiſdom and juſtice, and can fully reward or puniſh them, betrays equal madneſs and partiality of mind. It is plain, therefore, beyond all doubt, that ſome regards are due to the great Father of all, in whom every lovely and adorable quality combines to inſpire veneration and homage.

As our affections depend on our opinions of their objects, and generally keep pace with them, it muſt be of the higheſt importance, and ſeems to be among the firſt duties we owe to the Author of our being, "to form the *leaſt imperfect*, ſince we cannot form perfect, conceptions of his character and adminiſtration:" for ſuch conceptions, thoroughly imbibed, will render our religion rational, and our diſpoſitions refined. If our opinions are diminutive and diſtorted, our religion will be ſuperſtitious, and our temper abject. Thus, if we aſcribe to the Deity that falſe majeſty which conſiſts in the unbenevolent and ſullen exerciſe of mere will or power, or ſuppoſe him to delight in the proſtrations of ſervile fear, or as ſervile praiſe, he will be worſhipped with mean adulation, and a profuſion of compliments. Farther, if he be looked upon as a ſtern and implacable Being, delighting in vengeance, he will be adored with pompous offerings, ſacrifices, or whatever elſe may be thought proper to ſoothe and mollify him. But if we believe perfect goodneſs to be the character of the Supreme Being, and that he loves thoſe moſt who reſemble him moſt, the worſhip paid him will be rational and ſublime, and his worſhippers will ſeek to pleaſe him by imitating that goodneſs which they adore. The foundation, then, of all true religion is a rational faith. And of a rational faith theſe ſeem to be the chief articles: to believe, that an infinite all-perfect Mind exiſts, who has no oppoſite nor any ſeparate intereſt from that of his creatures; that he ſuperintends and governs all creatures and things; that his goodneſs extends to all his creatures, in different degrees indeed, according to their reſpective natures, but without any partiality or envy; that he does every thing for the beſt, or in a ſubſerviency to the perfection and happineſs of the whole; particularly, that he directs and governs the affairs of men, inſpects their actions, diſtinguiſhes the good from the bad, loves and befriends the former, is diſpleaſed with and pities the latter in this world, and will, according to their reſpective deſerts, reward one and puniſh the other in the next; that, in fine, he is always carrying on a ſcheme of virtue and happineſs through an unlimited duration, and is ever guiding the univerſe, through its ſucceſſive ſtages and periods, to higher degrees of perfection and felicity. This is true THEISM, the glorious ſcheme of divine faith; a ſcheme exhibited in all the works of God, and executed through his whole adminiſtration.

This faith, well founded and deeply felt, is nearly connected with a true moral taſte, and hath a powerful efficacy on the temper and manners of the theiſt. He who admires goodneſs in others, and delights in the practice of it, muſt be conſcious of a reigning order within, a rectitude and candour of heart, which diſpoſes him to entertain favourable apprehenſions of men; and, from an impartial ſurvey of things, to preſume that good order and good meaning prevail in the univerſe; and if ſo, then an ordering, an intending mind, who is no enemy, no tyrant to his creatures, but a friend, a benefactor, an indulgent ſovereign. On the other hand, a bad man, having nothing goodly or generous to contemplate within, no right intentions nor honeſty of heart, ſuſpects every perſon and every thing; and, beholding nature through the gloom of a ſelfiſh and guilty mind, is either averſe to the belief of a reigning order; or, if he cannot ſuppreſs the unconquerable anticipations of a governing mind, he is prone to tarniſh the beauty of nature, and to impute malevolence, or blindneſs and impotence at leaſt, to the Sovereign Ruler. He turns the univerſe into a forlorn and horrid waſte, and transfers his own character to the Deity, by aſcribing to him that uncommunicative grandeur, that arbitrary or revengeful ſpirit, which he affects or admires in himſelf. As ſuch a temper of mind naturally leads to ATHEISM, or to a SUPERSTITION full as bad; therefore, as far as that temper depends on the unhappy creature in whom it prevails, the propenſity to atheiſm or ſuperſtition conſequent thereto muſt be immoral. Farther, if it be true that the belief or ſenſe of a Deity is natural to the mind, and the evidence of his exiſtence reflected from his works ſo full as to ſtrike even the moſt ſuperficial obſerver with conviction, then the ſupplanting or corrupting that ſenſe, or the want of due attention to that evidence, and, in conſequence of both, a ſupine ignorance or *affected unbelief* of a Deity, muſt argue a bad temper or an immoral turn of mind. In the caſe of invincible ignorance, or a very bad education, though nothing can be concluded directly againſt the character; yet whenever ill paſſions and habits pervert the judgment, and, by perverting the judgment, terminate in atheiſm, then the caſe becomes plainly criminal.

But let caſuiſts determine this as they will, a true faith in the divine character and adminiſtration is generally the conſequence of a virtuous ſtate of mind. The man who is truly and habitually good, feels the love of order, of beauty, and goodneſs, in the ſtrongeſt degree; and therefore cannot be inſenſible to thoſe emanations of them which appear in all the works of God, nor help loving their ſupreme ſource and model. He cannot but think, that he who has poured ſuch beauty and goodneſs over all his works, muſt himſelf delight in beauty and goodneſs; and what he delights in muſt be both amiable and happy. Some indeed there are, and it is pity there ſhould be any ſuch, who, through the unhappy influence of a wrong education, have entertained dark and unfriendly thoughts of a Deity and his adminiſtration, though otherwiſe of a virtuous temper themſelves. However, it muſt be acknowledged, that ſuch ſentiments have, for the moſt part, a bad effect on the temper; and when they have not, it is becauſe the undepraved affections of an honeſt heart are more powerful in their operation than the ſpeculative opinions of an ill informed head.

But wherever right conceptions of the Deity and his providence prevail, when he is conſidered as the inexhauſtible ſource of light, and love, and joy, as acting in the joint character of a Father and Governor, imparting an endleſs variety of capacities to his creatures, and ſupplying them with every thing neceſſary to their full completion and happineſs; what veneration and gratitude muſt ſuch conceptions, thoroughly believed, excite in the mind! How natural and delightful muſt it be to one whoſe heart is open to the perception of truth, and of every thing fair, great, and wonderful in nature, to contemplate and adore him who is the firſt fair, the firſt great, and firſt wonderful; in whom wiſdom, power, and goodneſs, dwell vitally, eſſentially, originally, and act in perfect concert! What grandeur is here to fill the moſt enlarged capacity, what beauty to engage the moſt ardent love, what a maſs of wonder in ſuch exuberance of perfection, to aſtoniſh and delight the human mind through an endleſs duration!

If the DEITY is conſidered as our ſupreme Guardian and Benefactor, as the Father of Mercies, who loves his creatures with infinite tenderneſs, and in a particular manner all good men, nay, all who delight in goodneſs, even in its moſt imperfect degrees; what reſignation, what dependence, what generous confidence, what hope in God and his all-wiſe providence, muſt ariſe in the ſoul that is poſſeſſed of ſuch amiable views of him! All thoſe exerciſes of piety, and above all a ſuperlative eſteem and love, are directed to God as to their natural, their ultimate, and indeed their only adequate object; and though the immenſe obligations we have received from him may excite in us more lively feelings of divine goodneſs than a general and abſtracted contemplation of it, yet the affections of gratitude and love are of themſelves of the generous diſintereſted kind, not the reſult of ſelf-intereſt, or views of reward. A perfect character, in which we always ſuppoſe infinite goodneſs, guided by unerring wiſdom, and ſupported by almighty power, is the proper object of perfect love; which, as ſuch, we are forcibly drawn to purſue and to aſpire after. In the contemplation of the divine nature and attributes, we find at laſt what the ancient philoſophers ſought in vain, the SUPREME AND SOVEREIGN GOOD; from which all other goods ariſe, and in which they are all contained. The Deity therefore challenges our ſupreme and ſovereign love; a ſentiment which, whoſoever indulges, muſt be confirmed in the love of virtue, in a deſire to imitate its all-perfect pattern, and in a cheerful ſecurity that all his great concerns, thoſe of his friends and of the univerſe, ſhall be abſolutely ſafe under the conduct of unerring wiſdom and unbounded goodneſs. It is in his care and providence alone that the good man, who is anxious for the happineſs of all, finds perfect ſerenity; a ſerenity neither ruffled by partial ill, nor ſoured by private diſappointment.

When we conſider the unſtained purity and abſolute perfection of the divine nature, and reflect withal on the imperfection and various blemiſhes of our own, we muſt ſink, or be convinced we ought to ſink, into the deepeſt humility and proſtration of ſoul before him who is ſo wonderfully great and holy. When, further, we call to mind what low and languid feelings we have of the divine preſence and majeſty, what inſenſibility of his fatherly and univerſal goodneſs, nay, what ungrateful returns we have made to it, how far we come ſhort of the perfection of his law and the dignity of our own nature, how much we have indulged to the ſelfiſh paſſions, and how little to the benevolent ones; we muſt be conſcious that it is our duty to repent of a temper and conduct ſo unworthy our nature, and unbecoming our obligations to its Author, and to reſolve and endeavour to act a wiſer and better part for the future.

Nevertheleſs, from the character which his works exhibit of him, from thoſe delays or alleviations of puniſhment which offenders often experience, and from the merciful tenor of his adminiſtration in many other inſtances, the ſincere penitent may entertain good hopes that his Parent and Judge will not be ſtrict to mark iniquity, but will be propitious and favourable to him, if he honeſtly endeavours to avoid his former practices, and ſubdue his former habits, and to live in a greater conformity to the divine will for the future. If any doubts or fears ſhould ſtill remain, how far it may be conſiſtent with the rectitude and equity of the divine government to let his iniquities paſs unpuniſhed, yet he cannot think it unſuitable to his paternal clemency and wiſdom to contrive a method of retrieving the penitent offender, that ſhall unite and reconcile the majeſty and mercy of his government. If reaſon cannot of itſelf ſuggeſt ſuch a ſcheme, it gives at leaſt ſome ground to expect it. But though natural religion cannot let in moral light and aſſurance on ſo intereſting a ſubject, yet it will teach the humble theiſt to wait with great ſubmiſſion for any farther intimations it may pleaſe the ſupreme Governor to give of his will; to examine with candour and impartiality whatever evidence ſhall be propoſed to him of a divine revelation, whether that evidence is natural or ſupernatural; to embrace it with veneration and cheerfulneſs, if the evidence is clear and convincing; and, finally, if it bring to light any new relations or connections, natural religion will perſuade its ſincere votary faithfully to comply with the obligations, and perform the duties which reſult from thoſe relations and connections. This is theiſm, piety, the completion of morality!

We muſt farther obſerve, that all thoſe affections which we ſuppoſed to regard the Deity as their immediate and primary object, are vital energies of the ſoul, and conſequently exert themſelves into act, and, like all other energies, gain ſtrength or greater activity by that exertion. It is therefore our duty as well as higheſt intereſt, often at ſtated times, and by decent and ſolemn acts, to contemplate and adore the great Original of our exiſtence, the Parent of all beauty and of all good; to expreſs our veneration and love by an awful and devout recognition of his perfections; and to evidence our gratitude by celebrating his goodneſs, and thankfully acknowledging all his benefits. It is likewiſe our duty, by proper exerciſes of ſorrow and humiliation, to confeſs our ingratitude and folly; to ſignify our dependence on God, and our confidence in his goodneſs, by imploring his bleſſing and gracious concurrence in aſſiſting the weakneſs and curing the corruptions of our nature; and finally, to teſtify our ſenſe of his authority, and our faith in his government, by devoting ourſelves to do his will, and reſigning ourſelves to his diſpoſal. Theſe duties are not therefore obligatory, becauſe the Deity needs or can be profited by them; but as they are apparently decent and moral, ſuitable to the relations he ſuſtains of our Creator, Benefactor, Lawgiver, and Judge; expreſſive of our ſtate and obligations; and improving to our tempers, by making us more rational, ſocial, god-like, and conſequently more happy.

We have now conſidered Internal piety, or the worſhip of the mind, that which is in ſpirit and in truth; we ſhall conclude the ſection with a ſhort account of that which is External. External worſhip is founded on the ſame principles as internal, and of as ſtrict moral obligation. It is either private or public. Devotion that is inward, or purely intellectual, is too ſpiritual and abſtracted an operation for the bulk of mankind. The operations of their minds, ſuch eſpecially as are employed on the moſt ſublime, immaterial objects, muſt be aſſiſted by their outward organs, or by ſome help from the imagination; otherwiſe they will ſoon be diſſipated by ſenſible impreſſions, or grow tireſome if too long continued. Ideas are ſuch fleeting things, that they muſt be fixed; and ſo ſubtle, that they muſt be expreſſed and delineated, as it were, by ſenſible marks and images; otherwiſe we cannot attend to them, nor be much affected by them. Therefore verbal adoration, prayer, praiſe, thankſgiving, and confeſſion, are admirable aids to inward devotion, fix our attention, compoſe and enliven our thoughts, impreſs us more deeply with a ſenſe of the awful preſence in which we are, and, by a natural and mechanical ſort of influence, tend to heighten thoſe devout feelings and affections which we ought to entertain, and after this manner reduce into formal and explicit act.

This holds true in an higher degree in the caſe of public worſhip, where the preſence of our fellow-creatures, and the powerful communication of the ſocial affections, conſpire to kindle and ſpread the devout flame with greater warmth and energy. To conclude: As God is the parent and head of the ſocial ſyſtem, as he has formed us for a ſocial ſtate, as by the one we find the beſt ſecurity againſt the ills of life, and in the other enjoy its greateſt comforts, and as, by means of both, our nature attains its higheſt improvement and perfection; and as there are public bleſſings and crimes in which we all ſhare in ſome degree, and public wants and dangers to which all are expoſed—it is therefore evident, that the various and ſolemn offices of public religion are duties of indiſpenſable moral obligation, among the beſt cements of ſociety; the firmeſt prop of government, and the faireſt ornament of both.

PART III.

Sect. I. *Of* Practical Ethics, *or the* Culture *of the* Mind.

We have now gone through a particular detail of the ſeveral duties we owe to Ourselves, to Society, and to God. In conſidering the firſt order of duties, we juſt touched on the methods of acquiring the different kinds of goods which we are led by nature to purſue; only we left the conſideration of the method of acquiring the moral goods of the mind to a ſection by itſelf, becauſe of its ſingular importance. This ſection then will contain a brief enumeration of the arts of acquiring virtuous habits, and of eradicating vicious ones, as far as is conſiſtent with the brevity of ſuch a work: a ſubject of the utmoſt difficulty as well as importance in morals; to which, nevertheleſs, the leaſt attention has been generally given by moral writers. This will properly follow a detail of duty, as it will direct us to ſuch means or helps as are moſt neceſſary and conducive to the practice of it.

In the firſt part of this inquiry we traced the order in which the paſſions ſhoot up in the different periods of human life. That order is not accidental, or dependent on the caprice of men, or the influence of cuſtom and education, but ariſes from the original conſtitution and laws of our nature; of which this is one, "That ſenſible objects make the firſt and ſtrongeſt impreſſions on the mind." Theſe, by means of our outward organs, being conveyed to the mind, become objects of its attention, on which it reflects when the outward objects are no longer preſent, or, in other words, when the impreſſions upon the outward organs ceaſe. Theſe objects of the mind's reflection are called ideas or notions. Towards theſe, by another law of our nature, we are not altogether indifferent; but correſpondent movements of deſire or averſion, love or hatred, ariſe according as the objects which they denote made an agreeable or diſagreeable impreſſion on our organs. Thoſe ideas and affections which we experience in the firſt period of life, we refer to the body, or to ſenſe; and the taſte which is formed towards them, we call a ſenſible, or a merely natural taſte; and the objects correſponding to them we in general call good or pleaſant.

But as the mind moves forward in its courſe, it extends its views, and receives a new and more complex ſet of ideas, in which it obſerves uniformity, variety ſimilitude, ſymmetry of parts, reference to an end, novelty, grandeur. Theſe compoſe a vaſt train and diverſity of imagery, which the mind compounds, divides, and moulds into a thouſand forms, in the abſence of thoſe objects which firſt introduced it. And this more complicated imagery ſuggeſts a new train of deſires and affections, full as ſprightly and engaging as any which have yet appeared. This whole claſs of perceptions or impreſſions is referred to the imagination, and forms a higher taſte than the ſenſible, and which has an immediate and mighty influence on the finer paſſions of our nature, and is commonly termed a fine taſte.

The objects which correſpond to this taſte we uſe to call beautiful, great, harmonious, or wonderful, or in general by the name of beauty.

The mind, ſtill puſhing onwards and increaſing its ſtock of ideas, aſcends from thoſe to a higher ſpecies of objects, viz. the order and mutual relations of minds to each other, their reciprocal affections, characters, actions, and various aſpects. In theſe it diſcovers a beauty, a grandeur, a decorum, more intereſting and alluring than in any of the former kinds. Theſe objects, or the notions of them, paſſing in review before the mind, do, by a neceſſary law of our nature, call forth another and nobler ſet of affections, as admiration, eſteem, love, honour, gratitude, benevolence, and others of the like tribe. This claſs of perfections, and other correſpondent affections, we refer, becauſe of their objects (manners), to a moral ſenſe, and call the taſte or temper they excite, moral. And the objects which are agreeable to this taſte or temper we denominate by the general name of moral beauty, to diſtinguiſh it from the other, which is termed natural.

Theſe different ſets of ideas or notions are the materials about which the mind employs itſelf, which it blends, ranges, and diverſifies ten thouſand different ways. It feels a ſtrong propenſion to connect and aſſociate thoſe ideas among which it obſerves any ſimilitude or any aptitude, whether original and natural, or cuſtomary and artificial, to ſuggeſt each other. See METAPHYSICS, *Sect.* XXVIII.

But whatever the reaſons are, whether ſimilitude, co-exiſtence, caſuality, or any other aptitude or relation, why any two or more ideas are connected by the mind at firſt, it is an eſtabliſhed law of our nature, "that when two or more ideas have often ſtarted in company, they form ſo ſtrong an union, that it is very difficult ever after to ſeparate them." Thus the lover cannot ſeparate the idea of merit from his miſtreſs; the courtier that of dignity from his title or ribbon; the miſer that of happineſs from his bags. It is theſe aſſociations of worth or happineſs with any of the different ſets of objects or images before ſpecified, that form our taſte or complex idea of good. By another law of our nature, "our affections follow and are governed by this taſte. And to theſe affections our character and conduct are ſimilar and proportioned; on the general tenor of which our happineſs principally depends."

As all our leading paſſions then depend on the direction which our taſte takes, and as it is always of the ſame ſtrain with our leading aſſociations, it is worth while to enquire more particularly how theſe are formed, to detect the ſecret ſources from whence our paſſions derive their principal ſtrength, their various riſes and falls. For this will give us the true key to their management, and let us into the right method of correcting the bad and improving the good.

No kind of objects make ſo powerful an impreſſion on us as thoſe which are immediately impreſſed on our ſenſes, or ſtrongly painted on our imaginations. Whatever is purely intellectual, as abſtracted or ſcientific truths, the ſubtle relations and differences of things, has a fainter ſort of exiſtence in the mind; and though it may exerciſe and whet the memory, the judgment, or the reaſoning power, gives hardly any impulſe at all to the active powers, the paſſions, which are the main ſprings of motion. On the other hand, were the mind entirely under the direction of ſenſe, and impreſſible only by ſuch objects as are preſent, and ſtrike ſome of the outward organs, we ſhould then be preciſely in the ſtate of the brute creation, and be governed ſolely by inſtinct or appetite, and have no power to controul whatever impreſſions are made upon us. The author of our nature has therefore endued us with a middle faculty, wonderfully adapted to our mixed ſtate, which holds partly of ſenſe and partly of reaſon, being ſtrongly allied to the former, and the common receptacle in which all the notices that come from that quarter are treaſured up; and yet greatly ſubſervient and miniſterial to the latter, by giving a body, a coherence, and beauty to its conceptions. This middle faculty is called the IMAGINATION, one of the moſt buſy and fruitful powers of the mind. Into this common ſtorehouſe are likewiſe carried all thoſe moral forms which are derived from our moral faculties of perception; and there they often undergo new changes and appearances, by being mixed and wrought up with the ideas and forms of ſenſible or natural things. By this coalition of imagery, natural beauty is dignified and heightened by moral qualities and perfections, and moral qualities are at once exhibited and ſet off by natural beauty. The ſenſible beauty, or good, is refined from its droſs by partaking of the moral; and the moral receives a ſtamp, a viſible character and currency from the ſenſible.

As we are firſt of all accuſtomed to ſenſible impreſſions and ſenſible enjoyments, we contract early a ſenſual reliſh or love of pleaſure, in the lower ſenſe of the word. In order, however, to juſtify this reliſh, the mind, as it becomes open to higher perceptions of beauty and good, borrows from thence a noble ſet of images, as fine taſte, generoſity, ſocial affections, friendſhip, good fellowſhip, and the like; and, by dreſſing out the old purſuits with theſe new ornaments, gives them an additional dignity and luſtre. By theſe ways the deſire of a good table, love of finery, intrigue, and pleaſure, are vaſtly increaſed beyond their natural pitch, having an impulſe combined of the force of the natural appetites, and of the ſuperadded ſtrength of thoſe paſſions which tend to the moral ſpecies. When the mind becomes more ſenſible to thoſe objects or appearances in which it perceives beauty, uniformity, grandeur, and harmony, as fine clothes, elegant furniture, plate, pictures, gardens, houſes, equipage, the beauty of animals, and particularly the attractions of the ſex; to theſe objects the mind is led by nature, or cuſtom, or taught by the opinion and example of others, to annex certain ideas of moral character, dignity, decorum, honour, liberality, tenderneſs, and active or ſocial enjoyment. The conſequence of this aſſociation is, that the objects to which theſe are annexed muſt riſe in their value, and be purſued with proportionable ardour. The enjoyment of them is often attended with pleaſure; and the mere poſſeſſion of them, where that is wanting, frequently draws reſpect from one's fellow-creatures: This reſpect is, by many, thought equivalent to the pleaſure of enjoyment. Hence it happens, that the idea of happineſs is connected with the mere poſſeſſion, which is therefore eagerly ſought after, without any regard to the generous uſe or honourable enjoyment. Thus the paſſion, reſting on the means, not the end, *i. e.* loſing ſight of its natural object, becomes wild and extravagant.

In fine, any object, or external denomination, a ſtaff, a garter, a cup, a crown, a title, may become a moral badge or emblem of merit, magnificence, or honour, according as theſe have been found or thought, by the poſſeſſors or admirers of them, to accompany them; yet, by the deception formerly mentioned, the merit or the conduct which entitled, or ſhould entitle, to thoſe marks of diſtinction, ſhall be forgot or neglected, and the badges themſelves be paſſionately affected or purſued, as including every excellency. If theſe are attained by any means, all the concomitants which nature, cuſtom, or accidents have joined to them, will be ſuppoſed to follow of courſe. Thus, moral ends, with which the unhappy admirer is apt to colour over his paſſion and views, will, in his opinion, juſtify the moſt immoral means, as proſtitution, adulation, fraud, treachery, and every ſpecies of knavery, whether more open or more diſguiſed.

When men are once engaged in active life, and find that wealth and power, generally called INTEREST, are the great avenues to every kind of enjoyment, they are apt to throw in many engaging moral forms to the object of their purſuit, to juſtify their paſſion, and varniſh over the meaſures they take to gratify it, as independency on the vices or paſſions of others, proviſion and ſecurity to themſelves and friends, prudent œconomy, or well placed charity, ſocial communication, ſuperiority to their enemies, who are all villains, honourable ſervice, and many other ingredients of merit. To attain ſuch capacities of uſefulneſs or enjoyment, what arts, nay, what meanneſſes, can be thought blameable by thoſe cool purſuers of intereſt?—Nor have they whom the gay world is pleaſed to indulge with the title of men of pleaſure, their imaginations leſs pregnant with moral images, with which they never fail to ennoble, or, if they cannot do that, to palliate their groſs purſuits. Thus admiration of wit, of ſentiments and merit, friendſhip, love, generous ſympathy, mutual confidence, giving and receiving pleaſure, are the ordinary ingredients with which they ſeaſon their gallantry and pleaſurable entertainments; and by which they impoſe on themſelves, and endeavour to impoſe on others, that their amours are the joint iſſue of good ſenſe and virtue.

Theſe aſſociations, variouſly combined and proportioned by the imagination, form the chief private paſſions, which govern the lives of the generality, as the love of action, of pleaſure, power, wealth, and fame; they influence the defenſive and affect the public paſſions, and raiſe joy or ſorrow as they are gratified or diſappointed. So that in effect theſe aſſociations of good and evil, beauty and deformity, and the paſſions they raiſe, are the main hinges of life and manners, and the great ſources of happineſs or miſery. It is evident, therefore, that the whole of moral culture muſt depend on giving a right direction to the leading paſſions, and duly proportioning them to the value of the objects or goods purſued, under what name ſoever they may appear.

To give them this right direction and due proportion, it appears, from the foregoing detail, that theſe aſſociations of ideas, upon which the paſſions depend, muſt be duly regulated: that is to ſay, as an exorbitant paſſion for wealth, pleaſure, or power, flows from an aſſociation or opinion that more beauty and good, whether natural or moral, enters into the enjoyment or poſſeſſion of them, than really belongs to either: therefore in reſtoring thoſe paſſions to their juſt proportion, we muſt begin with correcting the opinion, or breaking the falſe aſſociation; or, in other words, we muſt decompound the complex fantom of happineſs or good, which we fondly admire; diſunite thoſe ideas that have no natural alliance; and ſeparate the original idea of wealth, power, or pleaſure, from the foreign mixtures incorporated with it, which enhance its value, or give it its chief power to enchant and ſeduce the mind. For inſtance, let it be conſidered how poor and inconſiderable a thing wealth is, if it be disjoined from real uſe, or from ideas of capacity in the poſſeſſor to do good, from independency, generoſity, proviſion for a family or friends, and ſocial communication with others. By this ſtandard let its true value be fixed; let its miſapplication, or unbenevolent enjoyment, be accounted ſordid and infamous; and nothing worthy or eſtimable be aſcribed to the mere poſſeſſion of it, which is not borrowed from its generous uſe.

If that complex form of good which is called pleaſure engage us, let it be analyſed into its conſtituent principles, or thoſe allurements it draws from the heart and imagination, in order to heighten the low part of the indulgence; let the ſeparate and comparative moment of each be diſtinctly aſcertained and deduced from that groſs part, and this remainder of the accumulated enjoyment will dwindle down into a poor, inſipid, tranſitory thing. In proportion as the opinion of the good purſued abates, the admiration muſt decay, and the paſſions loſe ſtrength. One effectual way to lower the opinion, and conſequently to weaken the habit founded upon it, is to practiſe leſſer pieces of ſelf-denial, or to abſtain, to a certain pitch, from the purſuit or enjoyment of the favourite object; and, that this may be the more eaſily accompliſhed, one muſt avoid thoſe occaſions, that company, thoſe places, and other circumſtances, that enflamed one, and endeared the other. And, as a counter proceſs, let higher or even different enjoyments be brought in view, other paſſions played upon the former, different places frequented, other exerciſes tried, company kept with perſons of a different or more correct way of thinking, both in natural and moral ſubjects.

As much depends on our ſetting out well in life, let the youthful fancy, which is apt to be very florid and luxuriant, be early accuſtomed by inſtruction, example, and ſignificant moral exerciſes, nay, by looks, geſtures, and every other teſtimony of juſt approbation or blame, to annex ideas of merit, honour, and happineſs, not to birth, dreſs, rank, beauty, fortune, power, popularity, and the like outward things, but to moral and truly virtuous qualities, and to thoſe enjoyments which ſpring from a well-informed judgment, and a regular conduct of the affections, eſpecially thoſe of the ſocial and diſintereſted kind. Such dignified forms of beauty and good, often ſuggeſted, and, by moving pictures and examples, warmly recommended to the imagination, enforced by the authority of conſcience, and demonſtrated by reaſon to be the ſureſt means of enjoyment, and the only independent, undeprivable, and durable goods, will be the beſt counterbalance to meaner paſſions, and the firmeſt foundation and ſecurity to virtue.

It is of great importance to the forming a juſt taſte, or pure and large conceptions of happineſs, to ſtudy and underſtand human nature well, to remember what a complicated ſyſtem it is, particularly to have deeply imprinted on our mind that GRADATION of ſenſes, faculties, and powers of enjoyment formerly mentioned, and the ſubordination of goods reſulting from thence, which nature points out, and the experience of mankind confirms. Who, when they think ſeriouſly, and are not under the immediate influence of ſome violent prejudice or paſſion, prefer not the pleaſures of action, contemplation, ſociety, and moſt exerciſes and joys of the moral kind, as friendſhip, natural affection, and the like, to all ſenſual gratifications whatſoever? Where the different ſpecies of pleaſure are blended into one complex form, let them be accurately diſtinguiſhed, and be referred each to its proper faculty and ſenſe, and examined apart what they have peculiar, what common with others, and what foreign and adventitious. Let wealth, grandeur, luxury, love, fame, and the like, be tried by this teſt, and their true alloy will be found out. Let it be farther conſidered, whether the mind may not be eaſy and enjoy itſelf greatly, though it want many of thoſe elegancies and ſuperfluities of life which ſome poſſeſs, or that load of wealth and power which others eagerly purſue, and under which they groan. Let the difficulty of attaining, the precariouſneſs of poſſeſſing, and the many abatements in enjoying overgrown wealth and envied greatneſs, of which the weary poſſeſſors ſo frequently complain, as the hurry of buſineſs, the burden of company, of paying attendance to the few, and giving it to the many, the cares of keeping, the fears of loſing, and the deſires of increaſing what they have, and the other troubles which accompany this pitiful drudgery and pompous ſervitude; let theſe and the like circumſtances be often conſidered, that are conducive to the removing or leſſening the opinion of ſuch goods, and the attendant paſſion or ſet of paſſions will decay of courſe.

Let the peculiar bent of our nature and character be obſerved, whether we are moſt inclined to form aſſociations and reliſh objects of the ſenſible, intellectual, or moral kind. Let that which has the aſcendant be particularly watched; let it be directed to right objects, be improved by proportioned exerciſes, and guarded by proper checks from an oppoſite quarter. Thus the ſenſible turn may be exalted by the intellectual, and a taſte for the beauty of the fine arts, and both may be made ſubſerviant to convey and rivet ſentiments highly moral and public-ſpirited. This inward ſurvey muſt extend to the ſtrength and weakneſſes of one's nature, one's conditions, connections, habitudes, fortune, ſtudies, acquaintance, and the other circumſtances of one's life, from which every man will form the juſteſt eſtimate of his own diſpoſitions and character, and the beſt rules for correcting and improving them. To do this with more advantage, let thoſe times or critical ſeaſons be watched, when the mind is beſt diſpoſed towards a change; and let them be improved by rigorous reſolutions, promiſes, or whatever elſe will engage the mind to perſevere in virtue. Let the conduct, in fine, be often reviewed, and the cauſes of its corruption or improvement be carefully obſerved.

It will greatly conduce to refine the moral taſte, and ſtrengthen the virtuous temper, to accuſtom the mind to the frequent exerciſe of moral ſentiments and determinations, by reading hiſtory, poetry, particularly of the pictureſque and dramatic kind, the ſtudy of the fine arts: by converſing with the moſt eminent for good ſenſe and virtue; but, above all, by frequent and repeated acts of humanity, compaſſion, friendſhip, politeneſs, and hoſpitality. It is exerciſe that gives health and ſtrength. He that reaſons moſt frequently becomes the wiſeſt, and moſt enjoys the plerſures of wiſdom. He who is moſt often affected by objects of compaſſion in poetry, hiſtory, or real life, will have his ſoul moſt open to pity, and its delightful pains and duties. So he alſo who practiſes moſt diligently the offices of kindneſs and charity, will by it cultivate that diſpoſition from whence all his pretenſions to perſonal merit muſt ariſe, his preſent and his future happineſs.

An uſeful and honourable employment in life will adminiſter a thouſand opportunities of this kind, and greatly ſtrengthen a ſenſe of virtue and good affections, which muſt be nouriſhed by right training, as well as our underſtandings. For ſuch an employment, by enlarging one's experience, giving an habit of attention and caution, or obliging one, from neceſſity or intereſt, to keep a guard over the paſſions, and ſtudy the outward decencies and appearances of virtue, will by degrees produce good habit, and at length inſinuate the love of virtue and honeſty for its own ſake.

It is a great inducement to the exerciſe of benevolence, to view human nature in a favourable light, to obſerve the characters and circumſtances of mankind on the faireſt ſides, to put the beſt conſtructions on their actions they will bear, and to conſider them as the reſult of partial and miſtaken, rather than ill affections, or at worſt, as the exceſſes of a pardonable ſelf-love; ſeldom or never the effect of pure malice.

Above all, the nature and conſequences of virtue and vice, their conſequences being the law of our nature and will of heaven; the light in which they appear to our Supreme Parent and Lawgiver, and the reception they will meet with from him; muſt be often attended to. The exerciſes of piety, as adoration, and praiſe on the divine excellency, invocation of and dependence of his aid, confeſſion, thankſgiving, and reſignation, are habitually to be indulged, and frequently performed, not only as medicinal, but highly improving to the temper.

To conclude; it will be of admirable efficacy towards eradicating bad habits, and implanting good ones, frequently to contemplate human life as the great nurſery of our future and immortal exiſtence, as that ſtate of probation in which we are to be educated for a divine life; to remember, that our virtues or vices will be immortal as ourſelves, and influence our future as well as our preſent happineſs; and therefore, that every diſpoſition and action is to be regarded as pointing beyond the preſent to an immortal duration. An habitual attention to this wide and important connection, will give a vaſt compaſs and dignity to our ſentiments and actions, a noble ſuperiority to the pleaſures and pains of life, and a generous ambition to make our virtue as immortal as our being.

SECT. II. *Of the* MOTIVES *to* VIRTUE *from* PERSONAL HAPPINESS.

We have already conſidered our obligations to the practice of virtue, ariſing from the conſtitution of our nature, by which we are led to approve a certain order and œconomy of affections, and a certain courſe of action correſpondent to it. But, beſides this, there are ſeveral motives which ſtrengthen and ſecure virtue, though not themſelves of a moral kind. Theſe are, its tendency to perſonal happineſs, and the contrary tendency of vice. "Perſonal happineſs ariſes either from the ſtate of a man's own mind, or from the ſtate and diſpoſition of external cauſes towards him."

We ſhall firſt examine the "tendency of virtue to happineſs with reſpect to the ſtate of a man's own mind." This is a point of the utmoſt conſequence in morals, becauſe, unleſs we can convince ourſelves, or ſhow to others, that, by doing our duty, or fulfilling our moral obligations, we conſult the greateſt ſatisfaction of our own mind; or our higheſt intereſt on the whole, it will raiſe ſtrong and often unſurmountable prejudices againſt the practice of virtue, eſpecially whenever there ariſes any appearances of operation between our duty and our ſatisfaction or intereſt. To creatures ſo deſirous of happineſs, and averſe to miſery, as we are, and often ſo oddly ſituated amidſt contending paſſions and intereſts, it is neceſſary that virtue appear not only in an honourable but pleaſing and beneficent form. And to juſtify our choice to ourſelves as well as others, we muſt feel and be able to avow in the face of the world, that her ways are ways of pleaſantneſs, and her paths the paths of peace.

Let any man in a cool hour, when diſengaged from buſineſs, and undiſturbed by paſſion, ſeriouſly reflect what ſtate or temper of mind we would chooſe to feel and indulge, in order to be eaſy and enjoy himſelf. Would he chooſe, for that purpoſe, to be in a conſtant diſſipation and hurry of thought; to be diſturbed in the exerciſe of his reaſon; to have various and often interfering phantoms of good playing before his imagination, ſoliciting and diſtracting him by turns, now ſoothing him with amuſing hopes, then torturing him with anxious fears; and to approve this minute what he ſhall condemn the next? Would he chooſe to have a ſtrong and painful ſenſe of every petty injury; quick apprehenſions of every impending evil; inceſſant and inſatiable deſires of power, wealth, honour, pleaſure; an irreconcileable antipathy againſt all competitors and rivals; inſolent and tyrannical diſpoſitions to all below him; fawning, and at the ſame time envious, diſpoſitions to all above him, with dark ſuſpicions and jealouſies of every mortal? Would he chooſe neither to love nor be beloved of any; to have no friend in whom to confide, or with whom to interchange his ſentiments or deſigns; no favourite, on whom to beſtow his kindneſs, or vent his paſſions; in fine, to be conſcious of no merit with mankind, no eſteem from any creature, no good affection to his Maker, no concern for, nor hopes of, his approbation; but, inſtead of all theſe, to hate, and know that he is hated, to condemn, and know that he is condemned by all; by the good, becauſe he is ſo unlike; and by the bad, becauſe he is ſo like themſelves; to hate or to dread the very Being that made him; and, in ſhort, to have his breaſt the ſeat of pride and paſſion, petulance and revenge, deep melancholy, cool malignity, and all the other furies that ever poſſeſſed and tortured mankind?—Would our calm inquirer after happineſs pitch on ſuch a ſtate, and ſuch a temper of mind, as the moſt likely means to put him in poſſeſſion of his deſired eaſe and ſelf-enjoyment?

Or would he rather chooſe a ſerene and eaſy flow of thought; a reaſon clear and compoſed; a judgment unbiaſſed by prejudice, and undiſtracted by paſſion; a ſober and well-governed fancy, which preſents the images of things true, and unmixed with deluſive and unnatural charms, and therefore adminiſters no improper or dangerous fuel to the paſſions, but leaves the mind free to chooſe or reject, as becomes a reaſonable creature; a ſweet and ſedate temper, not eaſily ruffled by hopes or fears, prone neither to ſuſpicion nor revenge, apt to view men and things in the faireſt lights, and to bend gently to the humours of others rather than obſtinately to contend with them? Would he chooſe ſuch moderation and continence of mind, as neither to be ambitious of power, fond of honours, covetous of wealth, nor a ſlave to pleaſure; a mind of courſe neither elated with ſucceſs, nor dejected with diſappointment; ſuch a modeſt and noble ſpirit as ſupports power without inſolence, wears honour without pride, uſes wealth without profuſion or parſimony; and rejoices more in giving than in receiving pleaſure; ſuch fortitude and equanimity as riſes above miſfortunes, or turns them into bleſſings, ſuch integrity and greatneſs of mind, as neither flatters the vices, nor triumphs over the follies of men; as equally ſpurns ſervitude and tyranny, and will neither engage in low deſigns, not abet them in others? Would he chooſe, in fine, ſuch mildneſs and benignity of heart as takes part in all the joys, and refuſes none of the ſorrows, of others; ſtands well affected to all mankind; is conſcious of meriting the eſteem of all, and of being beloved by the beſt; a mind which delights in doing good without any ſhew, and yet arrogates nothing on that account; rejoices in loving and being beloved by his Maker, acts ever under his eye, reſigns itſelf to his providence, and triumphs in his approbation?—Which of theſe diſpoſitions would be his choice, in order to be contented, ſerene, and happy?—The former temper is VICE, the latter VIRTUE. Where one prevails, there MISERY prevails, and by the generality is acknowledged to prevail. Where the other reigns, there happineſs reigns, and by the confeſſion of mankind is acknowledged to reign. The perfection of either temper is miſery or happineſs in perfection.—THEREFORE, every approach to either extreme is an approach to miſery or to happineſs; *i. e.* every degree of vice or virtue is accompanied with a proportionable degree of miſery or happineſs.

The principal alleviations of a virtuous man's calamities are theſe:—That though ſome of them may have been the effect of his imprudence or weakneſs, yet few of them are ſharpened by a ſenſe of guilt, and none of them by a conſciouſneſs of wickedneſs, which ſurely is their keeneſt ſting; that they are common to him with the beſt of men; that they ſeldom or never attack him quite unprepared, but rather guarded with a conſciouſneſs of his own ſincerity and virtue, with a faith and truſt in providence, and a firm reſignation to it; that they may be improved as means of correction, or materials to give ſcope and ſtability to his virtues; and, to name no more, they are conſiderably leſſened, and often ſweetened to him, by the general ſympathy of the wiſe and good.

His enjoyments are more numerous, or, if leſs numerous, yet more intenſe than thoſe of the bad man: for he ſhares in the joys of others by rebound; and every increaſe of general or particular happineſs is a real addition to his own. It is true, his friendly ſympathy with others ſubjects him to ſome pains which the hard-hearted wretch does not feel; yet to give a looſe to it, is a kind of agreeable diſcharge. It is ſuch a ſorrow as he loves to indulge; a ſort of pleaſing anguiſh that ſweetly melts the mind, and terminates in a ſelf-approving joy. Though the good man may want means to execute, or be diſappointed in the ſucceſs of, his benevolent purpoſes; yet, as was formerly (ſee *Part* II. *Sect*. II.) obſerved, he is ſtill conſcious of good affection, and that conſciouſneſs is an enjoyment of a more delightful favour than the greateſt triumphs of ſucceſsful vice. If the ambitious, covetous, or voluptuous, are diſappointed, their paſſions recoil upon them with a fury proportioned to their opinion of the value of what they purſue, and their hope of ſucceſs; while they have nothing within to balance the diſappointment, unleſs it is an uſeleſs fund of pride, which, however, frequently turns mere accidents into mortifying affronts, and exalts grief into rage and frenzy. Whereas the meek, humble, and benevolent temper, is its own reward, is ſatisfied from within; and, as it magnifies greatly the pleaſure of ſucceſs, ſo it wonderfully alleviates, and in a manner annihilates all pain from the want of it.

As the good man is conſcious of loving and wiſhing well to all mankind, he muſt be ſenſible of his deſerving the eſteem and good-will of all; and this ſuppoſed reciprocation of ſocial feelings is, by the very frame of our nature, made a ſource of very intenſe and enlivening joys. By this ſympathy of affections and intereſts, he feels himſelf intimately united with the human race; and being ſenſibly alive over the whole ſyſtem, his heart receives and becomes reſponſive to every touch given to any part. So that, as Lord Shaftſbury finely expreſſes it, "he gathers contentment and delight from the pleaſed and happy ſtates of thoſe around him, from accounts and relations of ſuch happineſs, from the very countenances, geſtures, voices, and ſounds, even of creatures foreign to our kind, whoſe ſigns of joy and contentment he can any way diſcern." Nor do thoſe generous affections ſtop any other natural ſource of joy whatever, or deaden his ſenſe of any innocent gratification. They rather keep the ſeveral ſenſes and powers of enjoyment open and diſengaged, intenſe and uncorrupted by riot or abuſe; as is evident to any one who conſiders the diſſipated, unfeeling ſtate of men of pleaſure, ambition, or intereſt, and compares it with the ſerene and gentle ſtate of a mind at peace with itſelf, and friendly to all mankind, unruffled by any violent emotion, and ſenſible to every good-natured and alluring joy.

It were eaſy, by going through the different ſets of affections mentioned formerly (*Part* I. *Sect*. I. II.) to ſhow, that it is only by maintaining the proportion ſettled there, that the mind arrives at true repoſe and ſatisfaction. If fear exceeds that proportion, it ſinks into melancholy and dejection. If anger paſſes juſt bounds, it ferments into rage and revenge, or ſubſides into a ſullen corroding gloom, which embitters every good, and renders one exquiſitely ſenſible to every ill. The private paſſions, the love of honour eſpecially, whoſe impulſe are more generous, as its effects are more diffuſive, are inſtruments of private pleaſure; but if they are diſproportioned to our wants, or to the value of their ſeveral objects, or to the balance of other paſſions equally neceſſary and more amiable, they become inſtruments of intenſe pain and miſery. For, being deſtitute of that counterpoiſe which held them at a due pitch, they grow turbulent, and become the cauſes of conſtant reſtleſſneſs and torment, ſometimes flying out into a wild delirious joy, at other times ſettling in a deep ſplenetic grief. The concert between reaſon and paſſion is then broken; all is diſſonance and diſtraction within. The mind is out of frame, and feels an agony proportioned to the violence of the reigning paſſion.

The caſe is much the ſame, or rather worſe, when any of the particular kind affections are out of their natural order and proportion; as happens in the caſe of effeminate pity, exorbitant love, parental dotage, or any party paſſion, where the juſt regards to ſociety are ſupplanted. The more ſocial and diſintereſted the paſſion is, it breaks out into the wilder exceſſes, and makes the more dreadful havoc both within and abroad: as is but too apparent in thoſe caſes where a falſe ſpecies of religion, honour, zeal, or party rage, has ſeized on the enthuſiaſm of the mind, and worked it up to madneſs. It breaks through all ties natural and civil, diſregards the moſt ſacred and ſolemn obligations, ſilences every other affection, whether public or private, and transforms the moſt gentle natures into the moſt ſavage and inhuman. Whereas, the man who keeps the balance of affection even, is eaſy and ſerene in his motions; mild, and yet affectionate; uniform and conſiſtent with himſelf; is not liable to diſagreeable colliſions of intereſts and paſſions; gives always place to the moſt friendly and humane affections; and never to diſpoſitions or acts of reſentment, but on high occaſions, when the ſecurity of the private, or welfare of the public ſyſtem, or the great intereſts of mankind, neceſſarily require a noble indignation; and even then he obſerves a juſt meaſure in wrath; and laſt of all, he proportions every paſſion to the value of the object he affects, or to the importance of the end he purſues.

To ſum up this part of the argument, the honeſt and good man has eminently the advantage of the knaviſh and ſelfiſh wretch in every reſpect. The pleaſures which the laſt enjoys flow chiefly from external advantages and gratifications; are ſuperficial and tranſitory; daſhed with long intervals of ſatiety, and frequent returns of remorſe and fear; dependent on favourable accidents and conjunctures; and ſubjected to the humours of men. But the good man is ſatisfied from himſelf; his principle poſſeſſions lie within, and therefore beyond the reach of the caprice of men or fortune; his enjoyments are exquiſite and permanent; accompanied with no inward checks to damp them, and always with ideas of dignity and ſelf-approbation; may be taſted at any time, and in any place. The gratifications of vice are turbulent and unnatural, generally ariſing from the relief of paſſions in themſelves intolerable, and iſſuing in tormenting reflections; often irritated by diſappointment, always inflamed by enjoyment, and yet never cloyed with repetition. The pleaſures of virtue are calm and natural; flowing from the exerciſe of kind affections, or delightful reflections in conſequence of them; not only agreeable in the proſpect, but in the preſent feeling; they never ſatiate nor loſe their reliſh; nay, rather the admiration of virtue grows ſtronger every day; and not only is the deſire but the enjoyment heightened by every new gratification; and, unlike to moſt others, it is increaſed, not diminiſhed by ſympathy, and communication.—In fine, the ſatisfaction of virtue may be purchaſed without a bribe, and poſſeſſed in the humbleſt as well as the moſt triumphant fortune; they can bear the ſtricteſt review, do not change with circumſtances, nor grow old with time. Force cannot rob, nor fraud cheat us of them; and, to crown all, inſtead of abating they enhance every other pleaſure. But the happy conſequence of virtue are ſeen not only in the internal enjoyments it affords a man, but "in the favourable diſpoſition of external cauſes towards him, to which it contributes."

As virtue gives the ſober poſſeſſion of one's ſelf, and the command of one's paſſions, the conſequence muſt be heart's eaſe, and a fine natural flow of ſpirits, which conduce more than any thing elſe to health and long life. Violent paſſions, and the exceſſes they occaſion, gradually impair and wear down the machine. But the calm placid ſtate of a temperate mind, and the healthful exerciſes in which virtue engages her fathful votaries, preſerve the natural functions in full vigour and harmony, and exhilarate the ſpirits, which are the chief inſtruments of action.

It may by ſome be thought odd to aſſert, that virtue is no enemy to a man's fortune in the preſent ſtate of things.—But if by fortune be meant a moderate or competent ſhare of wealth, power, or credit, not overgrown degrees of them; what ſhould hinder the virtuous man from obtaining that? He cannot cringe or fawn, it is true, but he can be civil and obliging as well as the knave; and ſurely his civility is more alluring, becauſe it has more manlineſs and grace in it than the mean adulation of the other: he cannot cheat or undermine; but he may be cautious, provident, watchful of occaſions, and equally prompt with the rogue in improving them: he ſcorns to proſtitute himſelf as a pander to the paſſions, or as a tool to the vices of mankind; but he may have as ſound underſtanding and as good capacities for promoting their real intereſts as the verieſt court ſlave: and then he is more faithful and true to thoſe who employ him. In the common courſe of buſineſs, he has the ſame chance with the knave of acquiring a fortune, and riſing in the world. He may have equal abilities, equal induſtry, equal attention to buſineſs; and in other reſpects he has greatly the advantage of him. People love better to deal with him; they can truſt him more; they know he will not impoſe on them, nor take advantage of them, and can depend more on his word than on the oath or ſtrongeſt ſecurities of others. Whereas cunning, which is the offſpring of ignorance, and conſtant companion of knavery, is not only a mean-ſpirited, but a very ſhort-ſighted talent, and a fundamental obſtacle in the road of buſineſs. It may procure indeed immediate and petty gain; but it is attended with dreadful abatements, which do more than overbalance them, both as it ſinks a man's credit when diſcovered, and cramps that largeneſs of mind which extends to the remoteſt as well as the neareſt intereſt, and takes in the moſt durable equally with the moſt tranſient gains. It is therefore eaſy to ſee how much a man's credit and reputation, and conſequently his ſucceſs, depend on his honeſty and virtue.

With regard to ſecurity and peace with his neighbours, it may be thought, perhaps, that the man of a quiet forgiving temper, and a flowing benevolence and courteſy, is much expoſed to injury and affronts from every proud or peeviſh mortal, who has the power or will to do miſchief. If we ſuppoſe, indeed, this quietneſs and gentleneſs of nature accompanied with cowardice and puſillanimity, this may often be the caſe; but in reality the good man is bold as a lion, and ſo much the bolder for being the calmer. Such a perſon will hardly be a butt to mankind. The ill-natured will be afraid to provoke him, and the good-natured will not incline to do it. Beſides, true virtue, which is conducted by reaſon, and exerted gracefully and without parade, is a moſt inſinuating and commanding thing; if it cannot diſarm malice and reſentment at once, it will wear them out by degrees, and ſubdue them at length. How many have, by favours and prudently yielding triumphed over an enemy, who would have been inflamed into tenfold rage by the fierceſt oppoſition! In fine, GOODNESS is univerſally popular.

To conclude; the good man may have ſome enemies, but he will have more friends; and having given ſo many marks of private friendſhip or public virtue, he can hardly be deſtitute of a patron to protect, or a ſanctuary to entertain him, or to protect or entertain his children when he is gone. Though he ſhould have little elſe to leave them, he bequeaths them the faireſt, and generally the moſt unenvied inheritance of a good name, which will often raiſe up unſolicited friends, and produce unexpected charities. But ſhould the fragrance of the parent's virtue prove offenſive to a perverſe or envious age, or even draw perſecution on the friendleſs orphans, there is one in heaven who will be more than a father to them, and recompenſe their parent's virtues by ſhowering down bleſſings on them.

SECT. III. *Of* MOTIVES *to* VIRTUE *from the* BEING *and* PROVIDENCE *of* GOD.

BESIDES the interesting motive mentioned in the laſt Section, there are two great motives to virtue ſtrictly connected with human life, and reſulting from the very conſtitution of the human mind. The firſt is the BEING and PROVIDENCE of GOD; the ſecond is the IMMORTALITY of the SOUL, with future rewards and puniſhments.

It appears from *Sect.* iv. of *Part* II. that man, by the conſtitution of his nature, is deſigned to be a RELIGIOUS CREATURE. He is intimately connected with the Deity, and neceſſarily dependent on him. From that connection and neceſſary dependence reſult various obligations and duties, without fulfilling which, ſome of his ſublimeſt powers and affections would be incomplete and abortive. If he be likewiſe an IMMORTAL creature, and if his preſent conduct ſhall affect his future happineſs in another ſtate as well as in the preſent, it is evident that we take only a partial view of the creature if we leave out this important property of his nature, and make a partial eſtimate of human life; if we ſtrike out of the account, or overlook, that part of his duration which runs out into eternity. It is evident from the arguments in the Section above referred to, that "to have reſpect to the Deity in our temper and conduct, to venerate and love his character, to adore his goodneſs, to depend upon and reſign ourſelves to his providence, to ſeek his approbation, and act under a ſenſe of his authority, is a fundamental part of moral virtue, and the completion of the higheſt deſtination of our nature."

But as piety is an eſſential part of virtue, ſo likewiſe it is a great ſupport and enforcement to the practice of it. To contemplate and admire a Being of ſuch tranſcendent dignity and perfection as GOD, muſt naturally and neceſſarily enlarge the mind, give a freedom and ampleneſs to its powers, and a grandeur and elevation to its aims. For, as an excellent divine obſerves, "the greatneſs of an object, and the excellency of the act of any AGENT about a tranſcendent object, doth mightily tend to the enlargement and improvement of his faculties."[a] Little objects, mean company, mean cares, and mean buſineſs, cramp the mind, contract its views, and give it a creeping air and deportment. But when it ſoars above mortal cares and purſuits into the regions of divinity, and converſes with the greateſt and beſt of Beings, it ſpreads itſelf into a wider compaſs, takes higher flights in reaſon and goodneſs, becomes godlike in its air and manners. Virtue is both the effect and cauſe of greatneſs of mind. It requires that one think freely and act nobly. Now what can conduce more to freedom of thought and dignity of action, than to conceive worthily of GOD, to reverence and adore his unrivalled excellency, to imitate and tranſcribe that excellency into our own nature, to remember our relation to him, and that we are the images and repreſentatives of his glory to the reſt of the creation? Such feelings and exerciſes muſt and will make us ſcorn all actions that are baſe, unhandſome, or unworthy our ſtate; and the relation we ſtand in to GOD will irradiate the mind with the light of wiſdom, and ennoble it with the liberty and dominion of virtue.

The influence and efficacy of RELIGION may be conſidered in another light. We all know that the preſence of a friend, a neighbour, or any number of ſpectators, but eſpecially an auguſt aſſembly of them, uſes to be a conſiderable check upon the conduct of one who is not loſt to all ſenſe of honour and ſhame, and contributes to reſtrain many irregular ſallies of paſſion. In the ſame manner the awe of ſome ſuperior mind, who is ſuppoſed privy to our ſecret conduct, and armed with full power to reward or puniſh it, will impoſe a reſtraint on us in ſuch actions as fall not under the conduct or animadverſion of others. If we go ſtill higher, and ſuppoſe our inmoſt thoughts and darkeſt deſigns, as well as our moſt ſecret actions, to lie open to the notice of the ſupreme and univerſal mind, who is both the ſpectator and judge of human actions, it is evident that the belief of ſo auguſt a preſence, and ſuch awful inſpection, muſt carry a reſtraint and weight with it proportioned to the ſtrength of that belief, and be an additional motive to the practice of many duties which would not have been performed without it. "To live, therefore, under an habitual ſenſe of the Deity and his great adminiſtration, is to be converſant with wiſdom, order, and beauty, in the higheſt ſubjects, and to receive the delightful reflections and benign feelings which theſe excite while they irradiate from every ſcene of nature and providence." How improving muſt ſuch views be to the mind, in dilating and exalting it above thoſe puny intereſts and competitions which agitate and inflame the bulk of mankind againſt each other!

SECT. IV. MOTIVE *to* VIRTUE *from the* IMMORTALITY *of the* SOUL, &c.

THE other motive mentioned was the immortality of the ſoul, with future rewards and puniſhments. The metaphyſical proofs of the ſoul's immortality are commonly drawn from—its ſimple, uncompounded, and indiviſible nature; whence it is concluded, that it cannot be corrupted or extinguiſhed by a diſſolution or deſtruction of its parts:—from its having a beginning of motion within itſelf; whence it is inferred, that it cannot diſcontinue and loſe its motion:—from the different properties of matter and mind, the ſluggiſhneſs and inactivity of one, and the immenſe activity of the other; its prodigious flight of thought and imagination; its penetration, memory, foreſight, and anticipations of futurity; whence it is concluded, that a being of ſo divine a nature cannot be extinguiſhed. But as theſe metaphyſical proofs depend on intricate reaſonings concerning the nature, properties, and diſtinctions of body and mind, they are not obvious to ordinary underſtandings, and are ſeldom ſo convincing even to thoſe of higher reach, as not to leave ſome doubts behind them. Therefore perhaps it is not ſo ſafe to reſt the proof of ſuch an important article on what many may call the ſubtilties of ſchool-learning. Thoſe proofs which are brought from analogy, from the moral conſtitution and phœnomena of the human mind, the moral attributes of God, and the preſent courſe of things, and which therefore are called the moral arguments, are the plaineſt, and generally the moſt ſatisfying. We ſhall ſelect only one or two.

In tracing the nature and deſtination of any being, we form the ſureſt judgment from his powers of action, and the ſcope and limits of theſe, compared with his ſtate, or with that field in which they are exerciſed. If this being paſſes through different ſtates, or fields of action, and we find a ſucceſſion of powers adapted to the different periods of his progreſs, we conclude that he was deſtined for thoſe ſucceſſive ſtates, and reckon his nature progreſſive. If, beſides the immediate ſet of powers which fit him for action in his preſent ſtate, we obſerve another ſet which appear ſuperfluous if he were to be confined to it, and which point to another or higher one, we conclude, that he is not deſigned to remain in his preſent ſtate, but to advance to that for which thoſe ſupernumerary powers are adapted. Thus we argue, that the inſect, which has wings forming or formed, and all the apparatus proper for flight, is not deſtined always to creep on the ground, or to continue in the torpid ſtate of adhering to a wall, but is deſigned in its ſeaſon to take its flight in air. Without this farther deſtination, the admirable mechaniſm of wings and the other apparatus would be uſeleſs and abſurd. The ſame kind of reaſoning may be applied to man, while he lives only a ſort of vegetative life in the womb. He is furniſhed even there with a beautiful apparatus of organs, eyes, ears, and other delicate ſenſes, which receive nouriſhment indeed, but are in a manner folded up, and have no proper exerciſe or uſe in their confined ſtate. But ſoon the babe throws off his fetters, breaks looſe from his dark priſon, and emerges into open day, then unfolding his recluſe and dormant powers, breathes in air, gazing at light, admiring colours, ſounds, and all the fair variety of nature; and thus the whole myſtery of the firſt period is unravelled by the opening of this new ſcene. Though in this ſecond period the creature lives chiefly a kind of animal-life, i. e. of ſenſe and appetite, yet by various trials and obſervations he gains experience, and by the gradual evolution of the powers of imagination he ripens apace for an higher life, for exerciſing the arts of deſign and imitation, and of thoſe in which ſtrength or dexterity are more requiſite than acuteneſs or reach of judgment. In the ſucceeding rational or intellectual period, his underſtanding, which formerly crept in a lower, mounts into an higher ſphere, canvaſſes the natures, judges of the relations of things, forms ſchemes, deduces conſequences from what is paſt, and from preſent as well as paſt collects future events. By this ſucceſſion of ſtates, and of correſpondent culture, he grows up at length into a moral, a ſocial, and a political creature. This is the laſt period at which we perceive him to arrive in this his mortal career. Each period is introductory to the next ſucceeding one; each life is a field of exerciſe and improvement for the next higher one; the life of the fœtus for that of the infant, the life of the infant for that of the child, and all the lower for the higheſt and beſt. (See *Butler's Analogy*, Part I.)—But is this the laſt period of nature's progreſſion? Is this the utmoſt extent of her plot, where ſhe winds up the drama, and diſmiſſes the actor into eternal oblivion? Or does he appear to be inveſted with ſupernumerary powers, which have not full exerciſe and ſcope even in the laſt ſcene, and reach not that maturity or perfection of which they are capable; and therefore point to ſome higher ſcene where he is to ſuſtain another and more important character than he has yet ſuſtained? If ſuch there are, (and that there are ſuch every man who thinks muſt be convinced) may we not conclude by analogy, that he is deſtined for that after-part, and is to be produced upon a more auguſt and ſolemn ſtage, where his ſublimer powers ſhall have proportioned action, and his nature attain its completion?

If we attend to that curioſity, or prodigious thirſt of knowledge, which is natural to the mind in every period of its progreſs, and conſider withal the endleſs round of buſineſs and care, and the various hardſhips to which the bulk of mankind are chained down; it is evident, that in this preſent ſtate it is impoſſible to expect the gratification of an appetite at once ſo inſatiable and ſo noble. Our ſenſes, the ordinary organs by which knowledge is let into the mind, are always imperfect, and often fallacious; the advantages of aſſiſting or correcting them are poſſeſſed by few; the difficulties of finding out truth amidſt the various and contradictory opinions, intereſts, and paſſions of mankind, are many; and the wants of the creature, and of thoſe with whom he is connected, numerous and urgent; ſo that it may be ſaid of moſt men, that their intellectual organs are as much ſhut up and ſecluded from proper nouriſhment and exerciſe in that little circle to which they are confined, as the bodily organs of a child are in the womb. Nay, thoſe who to an aſpiring genius have added all the aſſiſtances of art, leiſure, and the moſt liberal education, what narrow proſpects can even they take of this unbounded ſcene of things from that little eminence on which they ſtand? and how eagerly do they ſtill graſp at new diſcoveries, without any ſatisfaction or limit to their ambition?

But ſhould it be ſaid, that man is made for action, and not for ſpeculation, or fruitleſs ſearches after knowledge, we aſk, For what kind of action? Is it only for bodily exerciſes, or for moral, political, and religious ones? Of all theſe he is capable; yet, by the unavoidable circumſtances of his lot, he is tied down to the former, and has hardly any leiſure to think of the latter, or, if he has, wants the proper means and opportunities of exerting them. The love of virtue, of one's friends and country, the generous ſympathy with mankind, and heroic zeal of doing good, which are all ſo natural to great and good minds, and ſome traces of which are found in the loweſt, are ſeldom united with proportioned means or opportunities of exerciſing them: ſo that the moral ſpring, the noble energies and impulſes of the mind, can hardly find proper ſcope even in the moſt fortunate condition; but are much depreſſed in ſome, and almoſt entirely reſtrained in the generality, by the numerous clogs of an indigent, fickly, or embarraſſed life. Were ſuch mighty powers, ſuch god-like affections, planted in the human breaſt to be folded up in the narrow womb of our preſent exiſtence, never to be produced into a more perfect life, nor to expatiate in the ample career of immortality?

Let it be conſidered, at the ſame time, that no poſſeſſion, no enjoyment, within the round of mortal things, is commenſurate to the *deſires*, or adequate to the *capacities*, of the MIND. The moſt exalted condition has its abatements; the happieſt conjuncture of fortune leaves many wiſhes behind; and, after the higheſt gratifications, the mind is carried forward in purſuit of new ones without end. Add to all, the fond deſire of IMMORTALITY, the ſecret dread of non-exiſtence, and the high unremitting pulſe of the ſoul beating for perfection, joined to the impoſſibility of attaining it here; and then judge whether this elaborate ſtructure, this magnificent apparatus of inward powers and organs, does not plainly point out an hereafter, and intimate ETERNITY to man? Does the Author of nature give the finiſhing touches to the leſſer and ignoble inſtances of his ſkill, and raiſe every other creature to the maturity and perfection of his being; and ſhall he leave his principal workmanſhip unfiniſhed? Does he carry the vegetative and animal life in man to their full vigour and higheſt deſtination; and ſhall he ſuffer his intellectual, his moral, his divine life, to fade away, and be for ever extinguiſhed? Would ſuch abortions in the moral world be congruous to that perfection of wiſdom and goodneſs which upholds and adorns the natural?

We muſt therefore conclude from this detail, that the preſent ſtate, even at its beſt, is only the WOMB of man's being, in which the nobleſt principles of his nature are fettered, or ſecluded from a correſpondent ſphere of action; and therefore deſtined for a future and unbounded ſtate, where they ſhall exert the fulneſs of their ſtrength. The moſt accompliſhed mortal, in this low and dark ſtate of exiſtence is only the rudiments of what he ſhall be when he takes his ethereal flight, and puts on immortality. Without a reference to that ſtate, man were a mere abortion, a rude unfiniſhed embryo, a monſter in nature. But this being once ſuppoſed, he ſtill maintains his rank of the maſter-piece of the creation; his latent powers are all ſuitable to the harmony and progreſſion of his nature; his noble aſpirations, and the pains of diſſolution, are his efforts towards a ſecond birth, the pangs of his delivery into light, liberty, and perfection; and death his diſcharge from gaol, his ſeparation from his fellow-priſoners, and introduction into the aſſembly of thoſe heroic ſpirits, who are gone before him, and of their GREAT ETERNAL PARENT. The fetters of his moral coil being looſened, and his priſon walls broken down, he will be open on every ſide to the admiſſion of truth and virtue, and their attendant happineſs; every vital and intellectual ſpring will evolve itſelf with a divine elaſticity in the free air of heaven. He will not then peep at the univerſe and its glorious Author through a dark grate or a groſs medium, nor receive the reflections of his glory through the ſtrait openings of ſenſible organs; but will be all eye, all ear, all ethereal and divine feeling. (See *Religion of Nature:* § 9.) Let one part, however, of the analogy be attended to: That as in the womb we receive our original conſtitution, form, and the eſſential ſtamina of our being, which we carry along with us into the light, and which greatly affect the ſucceeding periods of our life; ſo our temper and condition in the future life will depend on the conduct we have obſerved, and the character we have formed, in the preſent life. We are here in miniature what we ſhall be at full length hereafter. The firſt rude ſketch or out-lines of reaſon and virtue muſt be drawn at preſent, to be afterwards enlarged to the ſtature and beauty of angels.

This, if duly attended to, muſt prove not only a guard, but an admirable incentive to virtue. For he who faithfully and ardently follows the light of knowledge, and pants after higher improvements in virtue, will be wonderfully animated and inflamed in that purſuit, by a full conviction that the ſcene does not cloſe with life—that his ſtruggles, ariſing from the weakneſs of nature and the ſtrength of habit, will be turned into triumphs—that his career in the tract of wiſdom and goodneſs will be both ſwifter and ſmoother—and thoſe generous ardours with which he glows towards heaven, i. e. the perfection and immortality of virtue, will find their adequate object and exerciſe in a ſphere proportionably enlarged, incorruptible, immortal. On the other hand, what an inexpreſſible damp would it be to the good man, to dread the total extinction of that light and virtue, without which life, nay, immortality itſelf, were not worth a ſingle wiſh?

Many writers draw their proofs of the immortality of the ſoul, and of a future ſtate of rewards and puniſhments, from the unequal diſtribution of theſe here. It cannot be diſſembled that wicked men often eſcape the outward puniſhment due to their crimes, and do not feel the inward in that meaſure their demerit ſeems to require, partly from the callouſneſs induced upon their nature by the habits of vice, and partly from the diſſipation of their minds abroad by pleaſure or buſineſs—and ſometimes good men do not reap all the natural and genuine fruits of their virtue, through the many unforeſeen or unavoidable calamities in which they are involved. To the ſmalleſt reflection, however, it is obvious, that the natural tendency of virtue is to produce happineſs; that if it were univerſally practiſed, it would, in fact, produce the greateſt ſum of happineſs of which human nature is capable; and that this tendency is defeated only by numerous individuals, who, forſaking the laws of virtue, injure and oppreſs thoſe who ſteadily adhere to them. But the natural tendency of virtue is the reſult of that conſtitution of things which was eſtabliſhed by God at the creation of the world. This being the caſe, we muſt either conclude that there will be a future ſtate, in which all the moral obliquities of the preſent ſhall be made ſtraight; or elſe admit, that the deſigns of infinite wiſdom, goodneſs, and power, can be finally defeated by the perverſe conduct of human weakneſs.—But this laſt ſuppoſition is ſo extravagantly abſurd, that the reality of a future ſtate, the only other poſſible alternative, may be pronounced to have the evidence of perfect demonſtration.

VIRTUE has preſent rewards, and VICE preſent puniſhments annexed to it; ſuch rewards and puniſhments as make virtue, in moſt caſes that happen, far more eligible than vice; but, in the infinite variety of human contingencies, it ſometimes falls out, that the inflexible practice of virtue deprives a man of conſiderable advantages to himſelf, his family, or friends, which he might gain by a well-timed piece of roguery; ſuppoſe by betraying his truſt, voting againſt his conſcience, ſelling his country, or any other crime where the ſecurity againſt diſcovery ſhall heighten the temptation. Or it may happen, that a ſtrict adherence to his honour, to his religion, to the cauſe of liberty and virtue, ſhall expoſe him, or his family, to the loſs of every thing, nay, to poverty, ſlavery, death itſelf, or to torments far more intolerable. Now what ſhall ſecure a man's virtue in circumſtances of ſuch trial? What ſhall enforce the obligations of conſcience againſt the allurements of ſo many intereſts, the dread of ſo many and ſo terrible evils, and the almoſt unſurmountable averſion of human nature to exceſſive pain? The conflict is the greater, when the circumſtances of the crime are ſuch as eaſily admit a variety of alleviations from neceſſity, natural affection, love to one's family or friends, perhaps in indigence: theſe will give it even the air of virtue. Add to all, that the crime may be thought to have few bad conſequences,—may be eaſily concealed,—or imagined poſſible to be retrieved in a good meaſure by future good conduct. It is obvious to which ſide moſt men will lean in ſuch caſes; and how much need there is of a balance in the oppoſite ſcale, from the conſideration of a God, of a Providence, and of an immortal ſtate of retribution, to keep the mind firm and uncorrupt in theſe or like inſtances of ſingular trial or diſtreſs.

But without ſuppoſing ſuch peculiar inſtances, a ſenſe of a governing Mind, and a perſuaſion that virtue is not only befriended by him here, but will be crowned by him hereafter with rewards ſuitable to its nature, vaſt in themſelves, and immortal in their duration, muſt be not only a great ſupport and incentive to the practice of virtue, but a ſtrong barrier againſt vice. The thoughts of an Almighty Judge, and of an impartial future reckoning, are often alarming, inexpreſſibly ſo, even to the ſtouteſt offenders. On the other hand, how ſupporting muſt it be to the good man, to think that he acts under the eye of his friend, as well as judge! How improving, to conſider the preſent ſtate as connected with a future one, and every relation in which he ſtands as a ſchool of diſcipline for his affections; every trial as the exerciſe of ſome virtue; and the virtuous deeds which reſult from both, as introductory to higher ſcenes of action and enjoyment! Finally, how tranſporting it is to view death as his diſcharge from the warfare of mortality, and a triumphant entry into a ſtate of freedom, ſecurity, and perfection, in which knowledge and wiſdom ſhall break in upon him from every quarter; where each faculty ſhall have its proper object; and his virtue, which was often damped or defeated here, ſhall be enthroned in undiſturbed and eternal empire!

On reviewing this ſhort ſyſtem of MORALS, and the motives which ſupport and enforce it, and comparing both with the CHRISTIAN ſcheme, what light and vigour do they borrow from thence! How clearly and fully does CHRISTIANITY lay open the connections of our nature, both material and immaterial, and future as well as preſent! What an ample and beautiful detail does it preſent of the duties we owe to God, to ſociety, and ourſelves, promulgated in the moſt ſimple, intelligible, and popular manner; diveſted of every partiality of ſect or nation; and adapted to the general ſtate of mankind! With what bright and alluring examples does it illuſtrate and recommend the practice of thoſe duties; and with what mighty ſanctions does it enforce that practice! How ſtrongly does it deſcribe the corruptions of our nature, the deviations of our life from the rule of duty, and the cauſes of both! How marvellous and benevolent a plan of redemption does it unfold, by which thoſe corruptions may be remedied, and our nature reſtored from its deviations to tranſcendent heights of virtue and piety! Finally, what a fair and comprehenſive proſpect does it give us of the adminiſtration of God, of which it repreſents the preſent ſtate only as a ſmall period, and a period of warfare and trial! How ſolemn and unbounded are the ſcenes which it opens beyond it! the reſurrection of the dead, the general judgment, the equal diſtribution of rewards and puniſhments to the good and the bad, and the full completion of divine wiſdom and goodneſs in the final eſtabliſhment of order, perfection, and happineſs! How glorious then is that SCHEME of RELIGION, and how worthy of affection as well as admiration, which, by making ſuch diſcoveries, and affording ſuch aſſiſtances, has diſcloſed the unfading fruits and triumphs of virtue, and ſecured its intereſts beyond the power of TIME and CHANCE!

(1.) * **MORALS.** *n. ſ.* [without a ſingular.] The practice of the duties of life; behaviour with reſpect to others.—Some, as corrupt in their *morals* as vice could make them, have yet been ſolicitous to have their children ſoberly, virtuouſly, and piouſly brought up. *South.*—

Learn then what *morals* criticks ought to
ſhow. *Pope.*

(2.) **Morals.** See Moral Philosophy.

Moral Sense, that whereby we perceive what is good, virtuous, and beautiful, in actions, manners, and characters. See Moral Philosophy.

MORANNE, a town of France, in the dep. of Mayne, 5 miles N. of Chateauneuf.

MORANO, a town of Naples, in Calabria.

(1.) **MORANT**, Philip, F. S. A. a learned and indefatigable antiquary and biographer, ſon of Stephen Morant, was born at St Saviour's in the iſle of Jerſey, Oct. 6, 1700; educated at Abingdon ſchool, and Pembroke college, Oxford, where he took the degree of B. A. June 10th, 1721, and that of M. A. in 1724. Between 1733 and 1745, he obtained ſix benefices in Eſſex; and in 1748 he publiſhed his Hiſtory of Colcheſter, of which only 200 copies were printed. In 1751 he was elected F. S. A.; and in Feb. 1768 he was appointed by the lords ſub-committees of the houſe of peers to ſucceed Mr Blyke in preparing for the preſs a copy of the rolls of parliament; a ſervice to which he diligently attended till his death, on Nov. 25th, 1770. Beſides the above work, and many uſeful tranſlations, abridgements, and compilations, &c. he wrote all the Lives in the *Biographia Britannica* marked C; alſo the Life of Stillingfleet. The Hiſtory of Eſſex, 1760, 1768, 2 vols folio; The Life of King Edward the Confeſſor; and about 150 ſermons. He prepared the rolls of parliament as far as the 16th of Henry IV. The continuation of the taſk devolved upon Thomas Aſtle, Eſq. who had married his only daughter.

(2.) **Morant**, a river of Jamaica.

(3.) **Morant Bay**, a bay of Jamaica, on the S. coaſt, at the mouth of the above river. Lon. 76. 0. W. Lat. 17. 54. N.

(4.) **Morant Point**, the moſt eaſterly promontory of Jamaica. Lon. 75. 56. W. Lat. 17. 56. N.

MORAS, two towns of France; 1. in the dep. of Drome, 15 miles N. of Romans, and 15 NNE. of Tain: 2. in that of Iſere, 12 miles NW. of Tourdy Pin.

(1.) * **MORASS.** *n. ſ.* [*morais*, French.] Fen; bog; moor.—Landſcapes point out the faireſt and moſt fruitful ſpots, as well as the rocks and wilderneſſes and *moraſſes* of the country. *Watts.*—

Nor the deep *moraſs*
Refuſe, but through the ſhaking wilderneſs
Pick your nice way. *Thomſon.*

(2.) *A* **Morass** is a marſh, or low moiſt ground, which receives the waters from above, without having any deſcent to carry them off again. Somner derives the word from the Saxon *merſe, a lake;* Salmaſius from *mare, a collection of waters;* others from the German *maraſt, a muddy place;* and others from *mareſc*, of *maricetum* from *mariſcis*, i. e. (See Bog Draining, Fen, Marish, and Mersh.) In Scotland, Ireland, and the north of England, they have a peculiar kind of moraſſes called *moſſes* or *peat-moſſes*, whence the country people dig their peat or turf for firing. See Moss.

(1.) **MORAT**, a ci-devant bailiwick of Switzerland, belonging to the cantons of Berne and Friburg.

(2.) **Morat**, or **Murten**, a rich, trading, and conſiderable town of Switzerland, late capital of the above bailiwick, with a caſtle, where the bailiff reſided. It is ſeated on the lake Morat, on the road from Avenche to Bern, 10 miles W. of Bern, and 10 miles NE. of Friburg. It is celebrated for the obſtinate defence it made againſt Charles the Bold, duke of Burgundy, and for the battle which afterwards followed on the 22d of June 1476, where the duke was defeated, and his army almoſt entirely deſtroyed. (See France, § 36.) Not far from the town, and adjoining to the high road, there ſtill remains a monument of this victory. It is a ſquare building, filled with the bones of Burgundian ſoldiers, who were ſlain at the ſiege and in the battle; the number of which appears to have been very conſiderable. There are ſeveral inſcriptions in the Latin and German languages commemorating the victory. Morat lies 22 miles SSW. of Soleure. Lon. 6. 53. E. Lat. 46. 52. N.

(3.) **Morat**, a lake of Switzerland, between Bern and Avenche, about ſix miles long and two broad, the country about it being pleaſant and well cultivated. The lakes of Morat and Neufchatel are parallel to each other; but the former is more elevated, diſcharging itſelf by the Broye into the lake of Neufchatel. According to M. de Luc, the former is 15 French feet above the level of Neufchatel lake; and both theſe lakes, as well as that of Bienne, ſeem formerly to have extended conſiderably beyond their preſent limits, and from the poſition of the country appear to have been once united. Formerly the large fiſh named *ſilurus glanis*, or the *ſuluth*, frequented theſe lakes, but has not been caught in them for a long time paſt. Here are many delightful proſpects; particularly one from the top of mount Vuilly, which, he ſays, is perhaps the only central ſpot from which the eye can at once comprehend the vaſt amphitheatre formed on one ſide by mount Jura, ſtretching from the environs of Geneva as far as Baſle, and, on the other, by that ſtupendous chain of ſnowy Alps which extend from the frontiers of Italy to the confines of Germany, and is loſt at each extremity in the horizon.

MORATA, Olympia Fulvia, an Italian lady, diſtinguiſhed for her learning, born at Ferrara, in 1526. Her father, after teaching the belles lettres in ſeveral cities of Italy, was made preceptor to the two young princes of Ferrara, the ſons of Alphonſus I. The uncommon abilities he diſcovered in his daughter determined him to give her a very extraordinary education. Meanwhile the princeſs of Ferrara ſtudying polite literature, it was judged expedient that ſhe ſhould have a companion in the ſame purſuit; and Morata being called, ſhe was heard by the aſtoniſhed courtiers to declaim in Latin, to ſpeak Greek, and to explain the paradoxes of Cicero. Her father dying, ſhe was obliged to return home to ſuperintend family affairs, and the education of her brother and 3 ſiſters; both which ſhe executed with the greateſt diligence and ſucceſs. In the mean time Andrew Gruntler, a young German phyſician, who had taken his degree of M. D. at Ferrara, fell in love with her, and married her. She now went with her huſband to Germany, taking her little brother with her, whom ſhe inſtructed in Latin and Greek; and after ſtaying a ſhort time at Augſburg, went to Schweinfort in Franconia, where her huſband was born; but they had not been there long before that town was beſieged and burnt; on which they fled in the utmoſt diſtreſs to Hammelburg. This place they were alſo obliged to quit, and were reduced to the laſt extremities, when the elector palatine invited Grunthler to be profeſſor of phyſic at Heidelberg, and he entered on his new office in 1554; but they no ſooner began to taſte the ſweets of repoſe, than a diſeaſe, occaſioned by the diſtreſſes and hardſhips they had ſuffered, ſeized upon Morata, who died in 1555, in the 29th year of her age; and her huſband and brother did not long ſurvive her. She compoſed ſeveral works, great part of which were burnt with the town of Schweinfort; the remainder, which conſiſt of orations, dialogues, letters, and tranſlations, were collected and publiſhed under the title of *Olympiæ Fulviæ Moratæ fœminæ doctiſſimæ, et plane divinæ, opera omnia quæ hactenus inveniri potuerunt; quibus Cæli Secundi curionis epiſtolæ ac orationes acceſſerunt*; which has gone through ſeveral editions in 8vo.

MORATALAZ, a town of Spain, in New Caſtile, 22 miles N. of Cividad Real.

MORATALLA, a town of Spain, in Murcia.

MORAU, MORAVA, MORAVE, or (1.) MORAVIA, a river of Turkey, in Europe, which riſes in Bulgaria, runs N. through Servia by Niſſa, and falls into the Danube, E. of Belgrade, and 8 miles E. of Semendria.

(2.) MORAVIA, or MORAVA, a town of Servia on the above river, 6 miles NW. of Parakin.

(3.) MORAVIA, a marquiſate of Germany, called MAHERN by the Germans, and MORAWA by the natives, from the MORAW, which runs through the middle of it. It is bounded on the S. by Auſtria, on the N. by Glatz and Sileſia, W. by Bohemia, and E. by Sileſia and Hungary; being about 120 miles long and 100 broad. A great part of it is over-run with woods and mountains, where the air is very cold, but much wholeſomer than in the low grounds, which are full of bogs and lakes. The mountains, in general, are barren; but the more champaign parts tolerably fertile, yielding corn, with plenty of hemp and flax, good ſaffron, and paſture. Nor is it deſtitute of wine, red and white, fruits, and garden-ſtuff. It alſo abounds in horſes, black cattle, ſheep, and goats. In the woods and about the lakes there is plenty of wild fowl, game, veniſon, bees, honey, hares, foxes, wolves, beavers, &c. alſo quarries of marble, baſtard diamonds, amethyſts, alum, iron, ſulphur, ſalt-petre, and vitriol, with wholeſome mineral waters, and warm ſprings; but ſalt is imported. Its rivers, of which the March and Morawa are the chief, abound with trout, crayfiſh, barbels, eels, perch; and many other ſorts of fiſh. The language of the inhabitants is a dialect of the Sclavonic, differing little from the Bohemian; but the nobility and citizens ſpeak German and French. Moravia was anciently inhabited by the QUADI, who were driven out by the SCLAVI. Its kings, who were once powerful and independent, afterwards became dependent on, and tributary to, the German emperors and kings. At laſt, in 908, the Moravian kingdom was parcelled out among the Germans, Poles, and Hungarians. In 1086, that part of it properly called MORAVIA, was declared a marquiſate by the German king Henry IV. and united with Bohemia, to whoſe dukes and kings it hath ever ſince been ſubject. It is not very populous, but contains about 42 great or walled towns, 17 ſmall or open towns, and 198 market towns, beſides villages, &c. The ſtates of the country conſiſt of the clergy, lords, knights, and burgeſſes; and the diets, when ſummoned by the regency, are held at Brunn. The marquiſate is ſtill governed by its own peculiar conſtitutions, under the *directorium in bublicis & cameralibus*, and the ſupreme judicatory at Vienna. It is divided into ſix circles, each of which has its captain, and contributes to its ſovereign about one 3d of what is exacted of Bohemia. Towards the expenſes of the military eſtabliſhment of the Auſtrian hereditary countries, its yearly quota is 1,856,490 florins. Seven regiments of foot, one of cuiraſſiers, and one of dragoons, are uſually quartered in it. Chriſtianity was planted in this country in the 9th century; and the inhabitants continued attached to the church of Rome till the 15th, when they eſpouſed the doctrine of John Huſs, and threw off popery; but after the defeat of the elector-Palatine, whom they had choſen king, as well as the Bohemians, the emperor Ferdinand II. re-eſtabliſhed popery; though there are ſtill ſome proteſtants in Moravia. The biſhop of Olmutz, who ſtands immediately under the pope, is at the head of the eccleſiaſtics in this country. The ſupreme eccleſiaſtical juriſdiction, under the biſhop, is veſted in a conſiſtory. The trade of the people is inconſiderable. Of what they have, Brunn enjoys the principal part. At Iglau and Trebitz are manufacturers of cloth, paper, gun-powder, &c. There are alſo ſome iron works and glaſs-houſes in the country. The inhabitants in general are open-hearted, not eaſy to be provoked or pacified, obedient to their maſters, and true to their promiſes; but credulous of old prophecies, and much addicted to drinking, though neither ſuch ſots or bigots as they are repreſented by ſome geographers. The boors, indeed, upon the river Hank, are ſaid to be a thieviſh, unpoliſhed, brutal race. The ſciences now begin to enlighten the Moravians, the univerſity of Olmutz having been put on a better footing; and a riding academy, with a learned ſociety, have been lately eſtabliſhed there.

(1.) MORAVIANS, the people of MORAVIA.

(2.) MORAVIANS, in church hiſtory. See HERRNHUTERS, N° 1. and UNITED BRETHREN.

MORAW, MORAWA, MORAVA, a large river of Germany, which riſes in the mountains of Glatz, on the confines of Bohemia and Sileſia; croſſes all Moravia, where it waters Olmutz and Hradiſch; and receiving the Taya from the confines of Lower Hungary and Upper Auſtria, ſeparates theſe two countries as far as the Danube, into which it falls.

MORAWEN, a town of Bohemia in Chrudim.

MORAY. See MURRAY, N° 7.

MORAZZA, or *Bojana*, a river which runs into the Adriatic.

MORBACH, or MURBACH, a town of France, in the dep. of the Lower Rhine, and ci-devant prov. of Alſace; 42 miles E. of Straſburg. Lon. 8. 25. E. Lat. 48. 0. N.

(1.) MORBATTLE, a pariſh of Scotland, in Roxburghſhire, on the banks of the Kail and the Bowmont, which runs through it, not far from the Tweed. The population in 1755, as well as in 1795, was 789. The climate is ſalubrious, and the ſoil fertile, where it is improved, but little more than a 4th part of it is under cultivation. The drill turnip huſbandry, however, is carried on with great ſpirit.

(2.) MORBATTLE, the only village in the above pariſh. The ground on which it is built was fewed out a few years ago by the Marquis of Tweedale at L.5 per acre, for the ſingular term of 19 *times* 19 *years.* The ground is much improved, and ſupports many illuſtrious families very comfortably. The population in 1795 was 200 ſouls. The chief manufacture is linen yarn.

MORBEGNO, a handſome town of Italy, in the Valteline, probably in the department of the Upper Po; ſeated on the S ſide of the Adda, 12 miles SE. of Chiavenna, 20 NE. of Lecco, and 25 N. of Bergamo. Lon. 9. 31. E. Lat. 46. 10. N.

MORBEN, a mountain of Scotland, in Perthſhire, 12 miles N. of Crieff.

MORBEYA, a river of Morocco.

(1.) * MORBID. *n. ſ.* [*morbidus*, Latin.] Diſeaſed; in a ſtate contrary to health.—Though every human conſtitution is *morbid*, yet are there diſeaſes conſiſtent with the common functions of life. *Arbuth.*

(2.) MORBID, among phyſicians, is applied either to an unſound conſtitution, or to thoſe parts or humours that are affected by a diſeaſe.

* MORBIDNESS. *n. ſ.* [from *morbid.*] State of being diſeaſed.

* MORBIFICAL. } *adj.* [*morbis* and *facio*, Lat.
* MORBIFICK. } *morbifique*, Fr.] Cauſing diſeaſes.—The air appearing ſo malicious in this *morbific* conſpiracy, exacts a more particular regard. *Harvey.*—This diſeaſe is cured by the critical reſolution, concoction, and evacuation of the *morbific* matter. *Arbuthnot.*

(1.) MORBIHAN, a department of France, containing part of the ci-devant prov. of Bretagne; bounded on the N. by the dep. of the North Coaſts; E. by that of Ille and Vilaine; SE. by that of the Lower Loire; SW. by the Sea, and SW. by the dep. of Finiſterre; 72 miles long and 35 broad. Vannes is the chief city.

(2.) MORBIHAN, a bay of France, on the coaſt of the above dep. between Belleiſle and Vannes, containing above 30 ſmall iſlands.

(3.) MORBIHAN, a river in the above dep. which runs through and falls into the bay, giving name to both.

* MORBOSE. *adj.* [*morboſus*, Lat.] Proceeding from diſeaſe; not healthy.—Malphigi, under galls, comprehends all preternatural and *morboſe* tumours and excreſcences of plants. *Ray.*

* MORBOSITY. *n. ſ.* [*morboſus*, Lat.] Diſeaſed ſtate. A word not in uſe.—The inference is fair, from the organ to the action, that they have eyes; therefore ſome ſight was deſigned, if we except the caſual impediments or *morboſities* in individuals. *Brown.*

(1.) MORBUS, [Lat.] in medicine, a diſeaſe.

(2.) MORBUS, in botany. See VARIETY.

(3.) MORBUS, CHOLERA. See MEDICINE, *Index.*

(4.) MORBUS COMITIALIS, a name given to the epilepſy; becauſe if on any day when the people were aſſembled in *comitia* upon public buſineſs, any perſon ſuddenly ſeized with this diſorder ſhould fall down, the aſſembly was diſſolved, and the buſineſs of the *comitia*, however important, was ſuſpended. See COMITIA.

(5.) MORBUS REGIS, the ſame with the JAUNDICE. See MEDICINE, *Index.*

MORCIANO, a town of Naples, in Otranto.

MORCONE, a town of Naples, in Moliſe.

* MORDACIOUS. *adj.* [*mordax*, Lat.] Biting; apt to bite.

* MORDACITY. *n. ſ.* [*mordacite*, Fr. *mordacitas*, from *mordax*, Latin.] Biting quality.—It is to be inquired, whether there be any menſtruum to diſſolve any metal that is not fretting or corroding, and openeth the body by ſympathy; and not by *mordacity*, or violent penetration *Bacon.*

MORDANT. *n. ſ.* a baſis for dyeing. See DYEING, *Part* I. *Sect.* II.

MORDAUNT, Charles, earl of Peterborough, a celebrated commander both by ſea and land, was the ſon of John Lord Mordaunt, Viſcount Avalon, and was born about 1658. In 1675 he ſucceeded his father in his honours and eſtate. While young he ſerved under admirals Torington and Narborough in the Mediterranean againſt the Algerines; and in 1680 embarked for Africa with the earl of Plymouth, and diſtinguiſhed himſelf at Tangier when it was beſieged by the Moors. In the reign of James II. he voted againſt the repeal of the teſt act; and diſliking the meaſures of the court, obtained leave to go to Holland to command a Dutch ſquadron in the Weſt Indies. He afterwards accompanied the prince of Orange into England, and upon his advancement to the throne, was made a privy councellor, a lord of the bedchamber, firſt commiſſioner of the treaſury, and earl of MONMOUTH. But in November 1690, he was diſmiſſed from the treaſury. On the death of his uncle Henry earl of Peterborough in 1697, he ſucceeded to that title; and, upon the acceſſion of Q. Anne, was appointed captain-general and governor of Jamaica. In 1705 he was again made a privy-councellor; and general and commander in chief of the forces ſent to Spain, and joint admiral of the fleet with Sir Cloudſley Shovel, of which in 1706 he had the ſole command. His taking Barcelona with a handful of men, and afterwards relieving it when greatly diſtreſſed by the enemy; his driving out of Spain the duke of Anjou and the French army, which conſiſted of 25,000 men, though his own troops never amounted to 10,000; his gaining poſſeſſion of Catalonia, Valencia, Arragon, and Majorca, with part of Murcia and Caſtile, and thereby giving the earl of Galway an opportunity of advancing to Madrid without a blow, are aſtoniſhing inſtances of his bravery and conduct. For theſe important ſervices his lordſhip was declared general in Spain by Charles III. afterwards the VI. emperor of Germany; and on his return to England, he received the thanks of the Houſe of Lords. He was afterwards employed in ſeveral embaſſies to foreign courts, inſtalled K. G. and made governor of Minorca. In the reign of George I. he was general of all the marine forces in Great Britain, in which poſt he was continued by King George II. He died in his paſſage to Liſbon, where he was going for the recovery of his health, in 1735. He was diſtinguiſhed by various ſhining qualities; for, to the greateſt perſonal courage and reſolution, he added all the art of a general; a lively and penetrating genius; and a great extent of knowledge in ancient and modern literature. Hence his familiar letters, inſerted among thoſe of his friend Mr Pope, are an ornament to that excellent collection.

MORDECAI, [מרדכי Heb. i. e. Bitter.] the ſon of Jair, a celebrated Jew of the tribe of Benjamin, uncle and guardian of Eſther, Q. of Perſia. His ſaving K. Ahaſuerus's life, the enmity of Haman againſt him, the downfal and deſtruction of that proud miniſter, and the promotion of Mordecai to his office, with the other intereſting circumſtances, which contributed to ſave the Jewiſh nation from extirpation, are recorded in the Book of Eſther. See alſo AHASUERUS, ESTHER, and HAMAN.

MORDELLA, in zoology, a genus of inſects, of the coleoptera order. The antennæ are thread-ſhaped and ſerrated; the head is deflected under the neck; the pappi are clavated, compreſſed, and obliquely blunted; and the elytra are bent backwards near the apex. There are ſix ſpecies, all natives of Europe. See *Plate* XX. *fig.* 12.

* MORDICANT. *adj.* [*mordeo*, Lat. *mordicant*, Fr.] Biting; acrid.—He preſumes, that the *mordicant* quality of bodies muſt proceed from a fiery ingredient. *Boyle*

* MORDICATION. *n. ſ.* [from *mordicant*.] The act of corroding or biting.—Another cauſe is *mordication* of the orifices, eſpecially of the meſentery veins. *Bacon's Nat. Hiſt.*

(1.) MORDINGTON, a pariſh of Scotland, in the SE. corner of Berwickſhire, about 3½ miles long from N. to S. but of very unequal breadth, its form reſembling the latter G. It is bounded on the S. by the Whitadder, and on the E. by the German Ocean, where it borders on the Berwick bounds. The air is pure and healthy; the ſoil partly ſtiff clay, partly dry light loam, but all arable and fertile in every kind of grain, much of which is exported. Turnips, particularly the Swediſh, (See RUTA BAGA) and potatoes, are alſo much cultivated. Lime ſtone, free ſtone, coals, and iron ore, abound, and wild fowls are numerous. The population, in 1795, was 335, and had increaſed 154 ſince 1755, notwithſtanding the monopoly of many ſmall farms. The roads are good.

(2.) MORDINGTON, a village in the above pariſh, 4 miles from Berwick upon Tweed, and 5 S. of Eyemouth.

MORDOVA, a town of Ruſſia, in Tambou.

MORDUATES, a territory of Ruſſia, 300 m. from Moſcow.

MORDUN, a mountain of Scotland in Perthſhire, which affords one of the fineſt proſpects in the kingdom. The view from its ſummit is ſo extenſive, various, and grand, that M. Pennant, on account of its richneſs and variety, ſtyled it "*The Glory of Scotland.*"

(1.) MORE, Alexander, a French proteſtant divine born at Caſtros in 1616. His father was a Scotſman, and principal of the college of the Calviniſts in that city. Alexander was ſent to Geneva, where he was made profeſſor of Greek and of Theology, and at the ſame time diſcharged the office of a paſtor. But his violent love of women, and the irregularity of his conduct, excited a great number of enemies againſt him. Saumaiſe, informed of his diſagreeable ſituation, invited him to Holland, where he was firſt appointed profeſſor of Theology of Middleburgh, and afterwards of hiſtory at Amſterdam. The duties of theſe ſtations he diſcharged with great ability; and, in 1655, went to Italy, where he publiſhed his beautiful poem on the defeat of the Turkiſh fleet by the Venetians. This work procured him a gold chain from the republic. He afterwards went to Charenton, where his ſermons attracted a numerous audience, by the ſatirical alluſions and witticiſms with which they abounded. This ſtyle ſucceeded with him, as it was natural; but in his imitators it appeared altogether ridiculous. His impetuoſity brought him into new quarrels, eſpecially with Daille, who had greatly the better of him. He died at Paris, Sept. 20th, 1670, aged 54, in the ducheſs of Rohan's houſe. He was never married. His works are, 1. A Collection of Controverſial Tracts. 2. Orations and Poems, in Latin. 3. An anſwer to Milton, intitled, Alexandri Mori fides publica. Milton has attacked him with great and juſt ſeverity in his writings.

(2.) MORE, Edward. See MOORE, Nº 1.

(3.) MORE, Henry, D. D. an eminent Engliſh divine and philoſopher, in the 17th century, was educated at Eton ſchool, and Chriſt's college, Cambridge, of which he became a fellow, and ſpent his life in a retired way, publiſhing a great number of excellent works. He refuſed biſhopprics both in Ireland and England. He was an open hearted ſincere Chriſtian philoſopher, who ſtudied to eſtabliſh men in the belief of providence againſt atheiſm. Mr Hobbes was uſed to ſay, that if his own philoſophy was not true, there was none that he ſhould ſooner like than More's. His writings have been publiſhed in Latin and Engliſh, folio.

(4.) MORE, John, D. D. Bp. of Ely, an eminent Engliſh prelate, born in Leiceſterſhire, and educated at Cambridge, where he took his degree in 1681. After various preferments, he was made Bp. of Norwich in 1691, and tranſlated to Ely in 1707. He died in 1714. His *Sermons* were publiſhed by Dr Samuel Clarke, who was his chaplain. He had a moſt magnificent library, which was purchaſed by K. George II. for 6000 guineas, and preſented to the univerſity of Cambridge.

(5.) **More**, Sir Antony, an eminent painter, born in Utrecht, in 1719. He became a ſcholar of John Schovel, but ſtudied the manner of Holbein, to which he approached nearer than to that of the great maſters he ſaw at Rome. Like Holbein he was a cloſe imitator of nature, but did not arrive at his extreme delicacy of finiſhing; on the contrary he ſometimes ſtruck into a bold and maſculine ſtyle. He had a good knowledge of the chiaro ſcuro. In 1522, he drew Philip II. and was recommended by card. Granvelle to Charles V. who ſent him to Portugal, where he painted K. John III. Catherine his queen, and the infanta Mary, firſt wife of Philip II. For theſe three pictures he received 600 ducats, beſides a gold chain of 1000 florins, and other preſents. He had 100 ducats for his common portraits. But when ſent into England, to draw Q. Mary, he got 100l. a gold chain, and a penſion of 100l. a quarter, as painter to their majeſties. He made various portraits of the queen; one was ſent to the emperor, who ordered 200 florins to Antony. He remained in England during Mary's reign, and was much employed; but having neglected to write the names on the portraits he drew, moſt of them have loſt great part of their value, by our ignorance of the perſons repreſented. On Mary's death, More followed Philip into Spain, where he was indulged in ſo much familiarity, that one day the king, ſlapping him pretty roughly on the ſhoulder, More returned the ſtroke with his handſtick; a ſtrange liberty (Mr Walpole obſerved), to be taken with a *Spaniſh* monarch, and with *ſuch* a monarch!". He was ordered to retire to the Netherlands; but a meſſenger was diſpatched to recal him before he had finiſhed his journey. More, however, modeſtly excuſed himſelf, and proceeded. At Utrecht, he was employed by the D. of Alva to draw ſeveral of his miſtreſſes, and was made receiver of the revenues of Weſt Flanders; a preferment with which he was ſo much elated, that he burned his eaſel, and gave away his painting tools. He was a man of a ſtately handſome figure; and went to Bruſſels, where he lived magnificently; but died at Antwerp in 1775, aged 56. His portrait, painted by himſelf, is in the chamber of painters at Florence.

(6.) **More**, Sir Francis, a learned Engliſh lawyer of the Middle Temple. He publiſhed, 1. Readings upon 4 Jac. I. Lond. 1676, fol. 2. Caſes collected and reported; Lond. 1693, folio. He died in 1721.

(7.) **More**, Sir Thomas, lord high chancellor of England, ſon of Sir John More, one of the judges of the King's Bench, was born in 1480, at London; where he received the rudiments of his education. He was afterwards introduced to cardinal Moreton, who, in 1497, ſent him to Canterbury college, in Oxford, where he attended the lectures of Linacre and Grocinus, on Greek and Latin. In 1499 he came to New Inn in London to ſtudy the law; whence he removed to Lincoln's Inn, of which his father was a member. Notwithſtanding his application to the law, however, now about 20 years old, he was ſo bigoted to monkiſh diſcipline, that he wore a hair-ſhirt next his ſkin, and often faſted and ſlept on a bare plank. In 1503, being then a burgeſs in parliament, he diſtinguiſhed himſelf in the houſe, in oppoſition to the motion for granting a ſubſidy and three 15ths for the marriage of Henry VII's eldeſt daughter, Margaret, to K. James V. of Scotland. The motion was rejected; and the king was ſo highly offended at this oppoſition from a beardleſs boy, that he revenged himſelf on Mr More's father, by ſending him to the Tower, and obliging him to pay 100l. for his liberty. Being now called to the bar, he was appointed law-reader at Furnival's inn, which he held about three years. About this time he alſo read a public lecture in St Lawrence's church, Old Jewry, upon St Auſtin's treatiſe *De Civitate Dei*, with great applauſe. He had intended to become a Franciſcan friar, but was diſſuaded from it; and, by the advice of D. Colet, married Jane, daughter of John Colt, Eſq. of Newhall in Eſſex. In 1508 he was appointed judge of the ſheriff's court in London, was made a juſtice of the peace, and became very eminent at the bar. In 1516 he went to Flanders with Bp. Tonſtal, and Dr Knight, who were ſent by Henry VIII. to renew the alliance with the archduke of Auſtria afterwards Charles V. On his return, Cardinal Wolſey would have engaged him in the ſervice of the crown, and offered him a penſion, which he refuſed. But he ſoon after accepted the place of maſter of the requeſts, was created a knight, and a privy councellor, and in 1520, made treaſurer of the exchequer. About this time he built a houſe at Chelſea, and married a 2d wife, whoſe name was *Middleton*, a widow, old, ill-tempered, and covetous; yet Eraſmus ſays he was as fond of her, as if ſhe had been a young maid. In 1523, he was made ſpeaker of the houſe of commons: in which capacity he had the courage to oppoſe the then powerful miniſter, Wolſey, in his demand of an oppreſſive ſubſidy; yet he was, ſoon after, made chancellor of Lancaſter, and was treated by the king with ſingular familiarity. The king having once dined with Sir Thomas at Chelſea, walked with him near an hour in the garden, with his arm round his neck. After he was gone, Mr Roper, Sir Thomas's ſon-in-law, obſerved how happy he was to be ſo familiarly treated by the king: to which Sir Thomas replied, I muſt tell thee, I have no cauſe to be proud thereof; for if my head would win him a caſtle in France, it would not fail to go off." In 1526 he was ſent with Cardinal Wolſey and others, on a joint embaſſy to France, and in 1529 with Bp. Tonſtal to Cambray. The king, it ſeems, was ſo well pleaſed with his ſervices on theſe occaſions, that in 1530 he made him chancellor; which ſeems the more extraordinary, when Sir Thomas had repeatedly declared his diſapprobation of the king's divorce. Having executed that office about three years, with wiſdom and integrity, he reſigned the ſeals in 1533, probably to avoid the danger of his refuſing to confirm the king's divorce. He now retired to his houſe at Chelſea; diſmiſſed many of his ſervants; ſent his children with their reſpective families to their own houſes; for hitherto he had maintained all his children, with their families, in his own houſe, in the true ſtyle of an ancient patriarch, and ſpent his time in ſtudy and devotion; but the capricious tyrant would not ſuffer him to enjoy this tranquillity.

Though now reduced to a private ſtation, his opinion of the legality of the king's marriage with Anne Boleyn was deemed of ſo much importance, that various means were tried to obtain his approbation; but all perſuaſion proving ineffectual, he was with ſome others, attainted in the houſe of lords of miſpriſion of treaſon, for encouraging Elizabeth Barton, in her treaſonable practices. See BARTON Nº 2. His innocence appeared ſo clear, that they were obliged to ſtrike his name out of the bill. He was then accuſed of other crimes, but with the ſame effect; till, refuſing to take the oath enjoined by the act of ſupremacy, he was committed to the Tower, and after 13 months impriſonment, was tried at the King's bench, for high treaſon, in denying the king's ſupremacy. The proof reſted on the ſole evidence of Rich the ſolicitor general, whom Sir Thomas, in his defence, ſufficiently diſcredited; nevertheleſs the jury brought him in guilty, and he was condemned to ſuffer as a traitor. The merciful Harry, however, indulged him with ſimple decollation; and he was beheaded on Tower-hill, on the 5th July, 1535. His body which was firſt interred in the Tower, was begged by his daughter Margaret, and depoſited in the chancel of the church at Chelſea, where a monument, with an inſcription written by himſelf, had been erected, and is ſtill to be ſeen. She alſo procured his head after it had remained 14 days upon London bridge, and placed it in a vault belonging to the Roper's family, under a chapel near St Dunſtan's church in Canterbury. Sir Thomas More was a man of ſome learning, and an upright judge; a very prieſt in religion, yet cheerful, and even witty on many occaſions, particularly at his execution. He wanted not ſagacity, where religion was out of the queſtion; but in that his faculties were ſo enveloped, as to render him a weak and credulous enthuſiaſt. He left one ſon and three daughters. Sir Thomas was the author of various works, though his *Utopia* is the only performance that has ſurvived in the eſteem of the world; owing to the reſt being chiefly of a polemic nature: his anſwer to Luther has only gained him the credit of having the beſt knack of any man in Europe, at giving *bad* names in *good* Latin. His Engliſh works were collected and publiſhed by order of Q. Mary I. in 1557; his Latin, at Baſil, in 1563, and at Louvain in 1566.

(8.) MORE, Margaret, the eldeſt daughter of Sir Thomas More, was very remarkable for her knowledge of the Greek and Latin languages. She married Mr Roper of Well-hall in Kent, whoſe Life of Sir Thomas More was publiſhed by Mr Hearne at Oxford in 1716. She died in 1544, and was buried in the vault of St Dunſtan's in Canterbury, with her father's head in her arms.

(9.) * MORE. *adj.* [*mare*, Saxon; the comparative of ſome or great.] 1. In greater quantity; in greater degree.—

Wrong not that wrong with *more* contempt. *Shak.*

Theſe kind of knaves in this plainneſs
Harbour *more* craft, and *more* corrupter ends
Than twenty ſilky ducking obſervants. *Shak.*

Their riches were *more* than that they might dwell together. *Gen.* xxxvi. 7.—Let *more* work be laid upon the men. *Exod.* v. 9.—

Then crown my joys, or cure my pain;
Give me *more* love, or *more* diſdain. *Carew.*

2. In greater number. [The comparative of *ſome* or *many*.]—

He had ſo many languages in ſtore,
That only fame ſhall ſpeak of him in *more*. *Cowley.*

3. Greater. Now out of uſe.—

Of India the *more* and the *leſs*. *Mandeville.*
Both *more* and *leſs* have given him the revolt. *Shak.*

—The *more* part adviſed to depart. *Acts* xxvi. 12.
4. Added to ſome former number.—

One *more* citizen to ſybil give. *Dryden.*
I'm tir'd of rhyming, and would fain give o'er,
But Montague demands one labour *more*. *Addiſ.*
Great Dryden's friends before,
With open arms receive one poet *more*. *Pope.*

(10.) * MORE. *adv.* 1. To a greater degree.—He loved Rachel *more* than Leah. *Gen.* xxix. 30.—The ſpirits of animate bodies are all, in ſome degree, *more* or leſs kindled. *Bacon.*—Feeling *more* and *more* in himſelf the weight of time he was not unwilling to beſtow upon another ſome part of the pains. *Wotton.*—

The *more* the kindled combat riſes higher,
The *more* with fury burns the blazing fire. *Dryden's Fa.*

—As the blood paſſeth through narrower channels, the redneſs diſappears *more* and *more*. *Arb.* —The *more* God has bleſſed any man with eſtate or quality, juſt ſo much leſs in proportion is the care he takes in the education of his children. *Swift.* 2. The particle that forms the comparative degree.—

I am fall'n out with my *more* headier will,
To take the indiſpos'd and ſickly fit
For the ſound man. *Shak.*

May you long live a happy inſtrument for your king and country: happy here, and *more* happy hereafter. *Bacon.*—The advantages of learning are *more* laſting than thoſe of arms. *Collier.* 3. Again; a ſecond time.—Little did I think I ſhould ever have buſineſs of this kind on my hands *more*. *Tatler.* 4. Longer; yet continuing: with the negative particle.—

Caſſius is no *more*! Oh, ſetting ſun! *Shak.*

(11.) * MORE. *n. ſ.* [A kind of comparative from *ſome* or *much*.] 1. A greater quantity; a greater degree. Perhaps ſome of thoſe examples which are adduced under the adverb, with *the* before *more*, ſhould be placed here; but I rather think *the more* to be adverbial.—

Were I king,
I ſhould cut off the nobles for their lands;
And my *more* having would be as a ſauce
To make me hunger *more*. *Shak.*

—An heroick poem requires ſome great action of war; and as much or *more* of the active virtue than the ſuffering. *Dryden.*—The Lord do ſo, and much *more*, to Jonathan. 1 *Sam.*—

From hence the greateſt part of ills deſcend,
When luſt of getting *more* will have no end. *Dryden.*

—The

—They that would have *more* and *more* can never have enough, *L'Eſtrange.*—A mariner having let down a large portion of his ſounding line, he reached no bottom, whereby he knows the depth to be ſo many fathoms and *more*; but how much that *more* is, he hath no diſtinct notion. *Locke.* 2. Greater thing; other thing.—They, who ſo ſtate a queſtion, do no more but ſeparate the parts of it one from another. *Locke.* 3. Second time; longer time.—

Nor parted long, and now to part no *more.*
Pope.

4. It is doubtful whether the word, in this uſe, be a noun or adverb.—The dove returned not again unto him any *more. Gen.* viii.—

Pr'ythee be ſatisfy'd; he ſhall be aided,
Or I'll no *more* be king. *Dryden.*
Delia, the queen of beauty is now no *more.*
Walſh.

MOREA, anciently called PELOPONNESUS, a peninſula S. of Greece, to which it is joined by the iſthmus of Corinth. Its form reſembles a mulberry-leaf, and its modern name is derived from its abounding with mulberry trees. It is about 180 miles long and 130 broad. The air is temperate, and the land fertile, except in the middle, where it is full of mountains, and is watered by many rivers. It is divided into three provinces; Scania, Belvedera, and Brazzo di Maina. It was taken from the Turks by the Venetians in 1687; but they loſt it again 1715. The ſangiac of the Morea reſides at Modon. See GREECE and PELOPONNESUS.

MOREAU, James, an eminent French phyſician, born at Chalons ſur Saone, was the diſciple and friend of the famous Guy Patin. He drew upon himſelf the jealouſy and hatred of the old phyſicians by the public theſes he maintained, and vindicated in his writings. He died in a very advanced age in 1729. He wrote in French, 1. Conſultations on the Rheumatiſm. 2. A chemical treatiſe on Fevers. 3. A phyſical diſſertation on the Dropſy; and other works which are ſtill eſteemed.

MORECAMBE BAY, a bay of England, on the coaſt of Lancaſhire, at the mouths of the Dudden and Leven.

MOREELSE, Paul, an eminent painter born at Utrecht in 1575. He ſtudied painting under Michael Mirevelt. He was very ſucceſsful, in portraits, hiſtorical ſubjects and architecture, after he had improved his taſte in Italy. There are ſome excellent wooden cuts in chiaro-ſcuro by this artiſt, who died in 1638.

(1.) **MOREL**, Andrew, a very eminent antiquary, born at Berne in Switzerland. Having a ſtrong paſſion for the ſtudy of medals, he travelled through ſeveral countries, and made large collections. In 1683 he publiſhed, at Paris, in 8vo, *Specimen univerſæ rei nummariæ antiquæ.* The great work of which this was the ſpecimen was to be a complete collection of all ancient medals, of which he had then 20,000 exactly deſigned. Soon after this eſſay appeared, Lewis XIV. gave him a place in his cabinet of antiques, in which capacity he brought himſelf into great danger by ſpeaking too freely of M. Louvois on ſome private account, and he was committed to the Baſtile, for three years; nor was he releaſed until the death of Louvois, when the canton of Berne interceded in his favour. He afterward accepted an invitation from the count of Schwartzburg in Germany by whom he was furniſhed with every thing neceſſary for carrying on his grand work. In 1703 he died; and in 1734 came out at Amſterdam part of this collection, in 2 vols. folio, under the title of *Theſaurus Morellianus, ſive familiarum Romanorum numiſmata omina, diligentiſſime undique conquiſita,* &c. *Nunc primum edidit & commentario perpetuo illuſtravit Sigibertus Havercampus.* Theſe volumes contain an explication of 3539 medals, engraved, with their reverſes.

(2.) MOREL, Frederick, interpreter in Greek and Latin, and printer to the king of France, was heir to Vaſcoſan, whoſe daughter he had married. He was born in Champagne, and he died in an advanced age at Paris, in 1583. His ſons and grandſons trode in his ſteps; they diſtinguiſhed themſelves in literature, and maintained alſo the reputation which he had acquired by printing. The edition of *Gregory of Nyſſa*, by his ſon Claude Morel, is held in great eſtimation by the learned.

(3.) MOREL, Frederick, ſon of the preceding, and ſtill more celebrated than his father, was profeſſor and interpreter to the king, and printer for the Hebrew, Greek, Latin, and French languages. He was ſo devoted to ſtudy, that when he was told his wife was at the point of death, he would not ſtir till he had finiſhed the ſentence which he had begun. Before it was finiſhed, he was informed that ſhe was actually dead; *I am ſorry for it* (replied he coldly) *ſhe was an excellent woman.* He acquired great reputation from his works, which were numerous and well executed. From the MSS. in the king's library, he publiſhed treatiſes of St Baſil, Theodoret, St Cyrille, &c. and accompanied them with a tranſlation. His edition of the works of Œcumenius and Aretas, in 2 vols folio, is much eſteemed. He died, June 27, 1630, aged 78. His ſons and grandſons followed the ſame profeſſion.

(4.) MOREL, Robert, a benedictine monk of the ſociety of St Maur, born at Chaiſe-Dieu in Auvergne, A. D. 1653. He was appointed keeper of the library of St Germain des Pres in 1680; and afterwards ſuperior of different religious houſes. In 1699, he retired to St Denys, where he ſpent his time in compoſing works of practical religion. This learned monk, who poſſeſſed imagination, excelled chiefly in ſubjects of piety. His converſation was ſprightly and refined, his anſwers were prompt and ingenious, his temper was gentle and equable; and though his appearance was ſlovenly, it did not debaſe the beauty of his mind. All his words breathed charity, piety, uprightneſs, ſincerity, innocence, ſimplicity, and modeſty. He died A. D. 1731, aged 79. His principal works are, 1. *Effuſions de cœur ſur chaque verſe des Pſeaumes et des Cantiques de l'Egliſe*; Paris, 1716, in 5 vols. 12mo. 2. *Entretiens ſpirituels ſur les Evangiles des Dimanches et des Myſteres de toute l'année, diſtribués pour tous les jours del' Avent*, 1720, 4 vols. 12mo. 3. *Entretiens ſpirituels, pour ſervir de preparation à la Mort.* 12mo, 1721. 4. *Imitation de N. S. I. C.* a new tranſlation, with a pathetic prayer at the end of every chapter; 12mo, 1723. 5. *Meditations*

Chretiennes ſur les Evangiles de toute l'année, 2 vols. 12mo, 1726. 6. *De l'Eſperance Chretienne et de la Confiance en la miſericorde de Dieu*, 12mo, 1728.

(5, 6.) **Morel**, William, regius profeſſor of Greek, and director of the French king's printing houſe at Paris, died in 1564. He compoſed a *Dictionnaire Grec-Latin-Françōis*, which was publiſhed in 4to, in 1622, and ſome other works which indicate very extenſive learning. His editions of the Greek authors are exceedingly beautiful. This great ſcholar, who was of a different family from the above printers (N° 2, 3.), had a brother named John, who died in priſon, where he had been confined for hereſy, at the age of 20, and whoſe body was dug out of the grave, and burnt Feb. 27, 1559. They were natives of Tilleul, in the county of Mortein, in Normandy.

(7.) **Morel.** See **Morell.**

(8.) * **Morel.** *n. ſ.* [*ſolanum*, Lat.] 1. The *morel* is a plant, of which there are ſeveral ſpecies: when the flower ſheds there ſucceeds a ſpherical fruit, pretty hard, at firſt green like an olive, then black, full of a limpid juice and a great number of ſeeds. *Trevoux.*—

Spungy *morels* in ſtrong ragouſts are found,
And in the ſoup the ſlimy ſnail is drown'd.
Gay's Trivia.

2. A kind of cherry.—*Morel* is a black cherry, fit for the conſervatory before it be thorough ripe, but it is bitter eaten raw. *Mortimer.*

(1.) * **MORELAND.** *n. ſ.* [*morland*, Sax. *mor*, a mountain, and *land*.] A mountainous or hilly country: a tract of Staffordſhire is called the *Morlands*, from being hilly. See **Moorland.**

MORELL, Thomas, D. D. and F. SS. R. and A. a learned Engliſh divine and lexicographer, born in 1701. He publiſhed, 1. An edition of Ainſworth's Latin Dictionary, 2. An uſeful abridgment of it; Lond. 1774: 8vo. 3. Hedericus's Greek Lexicon. He alſo wrote, 4. Annotations on Lock's Eſſay, which appeared after his death; and he ſelected the ſcriptures for Handel's Oratorios. He died in 1784.

MORELLA, a town of Spain, in Valencia.

MORELY, Lord, a learned nobleman, ſon of Sir Thomas Parker, and a great favourite of Henry VIII, who made him a peer. He wrote ſeveral Latin poems, and died in 1547.

MORENA, in ancient geography, a diſtrict of Myſia, in the Hither Aſia. A part of it was occupied by Cleon, formerly at the head of a band of robbers, but afterwards prieſt of Jupiter Abrettenus; and enriched with poſſeſſions, firſt by Antony, and then by Cæſar.

MORENGO, a town of Italy in the dep. of the Serio, diſtrict and late province of Bergamo; 10 miles SSE. of Bergamo.

* **MOREOVER.** *adv.* [*more* and *over*.] Beyond what has been mentioned; beſides; likewiſe; alſo; over and above.—

Moreover, he hath left you all his walks. *Shak.*
He did hold me dear
Above this world; adding thereto, *moreover*,
That he would wed me, or elſe die my lover.
Shak.

—*Moreover* by them is thy ſervant warned. *Pſal.* xix. 11.

MORERI, Lewis, compiler of the *Hiſtorical Dictionary*, was born at Barge-mont in Provence, 1643. He ſtudied rhetoric and philoſophy at Aix, and divinity at Lyons. At 18 years of age he wrote a ſmall piece, entitled *Le Pays d'Amour*, and a collection of fine French poems, entitled *Doux plaiſirs de la Poeſie.* He learned Spaniſh and Italian; and tranſlated out of Spaniſh into French the book entitled *La Perfection Chretienne de Rodriguez.* He then refined the Saints' Lives to the purity of the French tongue. Being ordained prieſt, he preached at Lyons, and undertook, when 30 years of age, a new *Hiſtorical Dictionary*, printed at Lyons in one vol. folio, 1673. But his continual labour impaired his health; he died in 1680, aged 37. His 2d volume was publiſhed after his death; and 4 more have ſince been added. He left alſo ſome other works.

(1.) **MORES**, Edward Rowe, a learned Engliſh antiquary, born at Tunſtall, in Kent, in 1730, and educated at London, and Queen's College, Oxford. He publiſhed a curious relic of antiquity, entitled, *Nomina et Inſignia Gentilitia Nobilium, Equitumque, ſub Eduardo I. rege militantium.* Oxon. 1748, 4to. In 1752, he was elected a fellow of the Society of Antiquaries; and projected the Equitable Society for Inſurance on Lives and Survivorſhip, by Annuities. He wrote, 1. The Hiſtory and Antiquities of Tunſtall in Kent: 2. A Diſſertation on Founders and Founderies: and other works. He died in 1778.

(2.) **Mores**, a town of Sardinia; 23 miles E. of Algeri.

MORESBY, a harbour of Cumberland, above Whitehaven, in and near which many remains of antiquity have been dug up, ſuch as altars and ſtones, with inſcriptions; and ſeveral caverns have been found called *Pict's Holes.* It is ſuppoſed to have been a Roman fortification.

(1.) **MORESK**, } or **Morisko**, a kind of
(1.) **MORESQUE**, } painting, carving, &c.
done after the manner of the Moors; conſiſting of ſeveral groteſque pieces and compartiments promiſcuouſly intermingled, containing a wild reſemblance of birds, beaſts, trees, &c. Theſe are alſo called *arabeſques*, and are particularly uſed in embroideries, damaſk work, &c. See **Arabesque.**

(2.) **Moresque dances**, or **Morrice dances**, are thoſe altogether in imitation of the Moors, as ſarabands, chacons, &c. and are uſually performed with caſtanets, tambours, &c. There are few country places in England where the morrice dance is not known. It was probably introduced about the time of Henry VIII, and is a dance of young men in their ſhirts, with bells at their feet, and ribbands of various colours tied round their arms and flung acroſs their ſhoulders.

MORET, an ancient town of France, in the dep. of the Seine and Marne, and ci-devant prov. of the Iſle of France; with a caſtle on a canal, near the Seine; 9 miles NE. of Nemours, 12 SE. of Melun, and 35 of Paris. Lon. 2. 52. E. Lat. 48. 25. N.

MORETEL, a town of France, in the dep. of Iſere, 8 miles N. of Tour, and 27 E. of Lyons.

(1.) **MORETON**, a pretty large town of Devonſhire, ſeated on a hill, near Dartmore, with a market on Saturday, and a noted one for yar

It is 14 miles SW. of Exeter, and 185 W. by S. of London. Lon. 3. 46. W. Lat. 50. 39. N.

(2.) **Moreton**, a town in Glouceſterſhire, whoſe market is diſuſed. It is a good thoroughfare, and ſeated on the Foſſeway, 29 miles ESE. of Worceſter, and 83 WNW. of London. Lon. 1. 36. W. Lat. 52. 0. N.

MORETTA, a town of France, in the dep. of the Po, and late principality of Piedmont, on a rivulet which runs into the Po: 9 miles W. of Pignerola, and 16 SE. of Turin.

MOREUIL, a town of France, in the dep. of Somme; 9 miles NW. of Mont-Didier, and 12 SE. of Amiens.

MOREY, a town of France, in the dep. of Jura, 10 miles NNE. of St Claude.

MORGA, a river of Perſia, near Buckharia.

MORGAGNA. See Fata Morgagna.

MORGAGNI, John Baptiſt, M. D. and F. R. S. firſt profeſſor of anatomy in the univerſity of Padua, and member of ſeveral of the moſt eminent ſocieties in Europe, was born in 1682, at Forli, in Romagna. He began his ſtudies at Forli, but ſoon removed to Bologna, where he obtained the degree of M. D. when he had but juſt reached his 16th year. His peculiar taſte for anatomy found an able preceptor in Valſalva; and ſuch was the progreſs he made under him, that at 20 he himſelf taught anatomy with high reputation. Soon, however, the fame of his prelections, and the number of his pupils, excited the jealouſy of the profeſſors, and gave riſe to invidious perſecutions. But his abilities and prudence gained him a complete triumph; and all oppoſition was finally terminated on his being appointed by the ſenate of Bologna to fill a medical chair. But the duties of this important office did not occupy the whole of his time. He ſoon communicated the fruits of his labours to the public in his *Adverſaria Anatomica*, the firſt vol. of which was publiſhed in 1706, the 2d and 3d in 1717, and the 3 laſt in 1719. This excellent work ſpread his fame far beyond the limits of Bologna. The republic of Venice offered him the 2d medical chair in the univerſity of Padua; and doubled the emoluments. While in this department, he publiſhed his *Nova inſtitutionum medicarum idea*, at Padua, in 1712. And ſoon after he roſe to be firſt profeſſor of anatomy in that celebrated univerſity. Although he was thus finally ſettled at Padua, he gave proofs of his gratitude to Bologna, by exerting his utmoſt efforts to eſtabliſh its academy, of which he was one of the firſt aſſociates; and he enriched their publications with ſeveral valuable papers. Soon after this, the royal ſocieties of London and Paris received him among their number. Not long after, he began his *Epiſtolæ Anatomicæ*, the firſt of which is dated *Padua*, 1726. He was not more eminent as an anatomiſt than as a ſucceſsful phyſician. In 1760, when he was near 80 years of age, he publiſhed his large and valuable work *De cauſis et ſedibus morborum per anatomen indagatis*. This laſt and moſt important of all his productions will afford convincing evidence of his induſtry and abilities to lateſt poſterity. He alſo publiſhed, at different periods, ſeveral miſcellaneous pieces, which were afterwards collected into one volume, and printed under his own eye at Padua, in 1765. He intended to have publiſhed a complete edition of all his works, and was engaged in this, when, after he had nearly arrived at the 90th year of his age, death put a period to his long and glorious career, on the 5th Dec. 1771.

(1.) **MORGAN**, Sir Henry, a brave Engliſh ſeaman, and one of the moſt juſtly celebrated of the Buccaniers. (See Buccaniers, § 6.) Bryan Edwards, Eſq. in his *Hiſtorical Survey of the French Colony in St Domingo*, (p. 128.) ſays "the outrages and exceſſes of the Buccaniers have been wonderfully exaggerated. The narrative called the *Hiſtory of the Buccaniers* was originally written in Dutch, by one John Eſquemeling, who confeſſes he had been one of them, and was expelled from their ſociety. The reports of ſuch a writer ought to have been received with great caution, but there is a ſtill ſtronger circumſtance to excite ſuſpicion. The Engliſh work is not taken from the Dutch original, but from *a Spaniſh tranſlation*.—I am of opinion that many of the tragical ſtories concerning the torture of the Spaniſh priſoners, and the violation of the women, are interpolations of the Spaniſh tranſlator. I form this concluſion from the malignity diſplayed towards the character of Sir Henry Morgan. If we may believe the account given of this man, he was the moſt inhuman monſter that ever exiſted. Yet this very man, after he had quitted the ſea, was recommended by the E. of Carliſle to be his ſucceſſor in the government of Jamaica, and was appointed Lieut. Gov. in the earl's abſence. He afterwards received the honour of knighthood from Charles II, and paſſed the remainder of his life on his plantation in Jamaica. By the kindneſs of a friend in that iſland, I have had an opportunity of peruſing ſome of Sir Henry's original private letters; and this I will ſay, that they manifeſt ſuch a ſpirit of humanity, juſtice, liberality, and piety, as prove that he has either been groſsly traduced, or that he was the greateſt hypocrite living;—a character ill-ſuited to the frank and fearleſs temper of the man."

(2.) **Morgan**, a diſtrict of N. Carolina; bounded on the W. by the ſtate of Tenneſſee, and on the S. by that of S. Carolina. It is divided into the counties of Burke, Wilkes, Lincoln, Rutherford, and Buncomb; and contained 30,599 citizens, and 2693 ſlaves in 1795.

(3.) **Morgan**, or **Morgan-Town**, a town of Virginia, capital of Monongalia county, on the E. bank of the Monongahela; 329 miles from Philadelphia. Lon. 79. 58. N. Lat. 39. 39. N.

MORGANA fata. See Fata Morgana.

MORGANS, a town of Kentucky, 38 miles E. of Lexington.

(1.) **MORGANTOWN**, a town of N. Carolina, in Morgan diſtrict; 45 miles from Wilkes, and 661 from Philadelphia.

(2.) **Morgantown.** See Morgan, N° 3.

MORGANZA, a town of Pennſylvania, in Waſhington county, in a fertile country, 23 miles S. of Pittſburg.

MORGARTEM, a mountain of the Helvetic republic, in Schweitz.

MORGEMOULIN, a town of France, in the dep. of the Meuſe; 2 miles NW. of Eſtaign, and 9 NE. of Verdun.

MORGENE, a town of France, in the dep. of Mont Blanc, late Savoy, E. of St Jaire.

MORGENGABIC MARRIAGE. See CONCUBINAGE, § 3.

(1.) **MORGES**, a town of France, in the dep. of Iſere, 21 miles S. of Grenoble.

(2.) MORGES, a handſome and rich town of Switzerland, in the canton of Bern, and late capital of a bailiwick, with a caſtle where the bailiff reſided. It is a place of ſome trade, on account of a canal, by which they tranſport merchandizes from the lake of Geneva to other parts. It has a fine proſpect, and is ſeated on the lake of Geneva, 5 miles from Lauſanne. Lon. 6. 42. E. Lat. 46. 29. N.

* **MORGLAY.** *n. ſ.* A deadly weapon. *Ainſ.* *Glaive* and *morte*, French, and *glay mohr*, Erſe, a two handed broad-ſword, which ſome centuries ago was the highlander's weapon.

MORGNY, a town of France, in the department of the Eure; 5 miles E. of Lyons.

MORGO, an iſland in the Archipelago, anciently called *Amorgos*, fertile in wine, oil, and corn. See AMORGOS. It is well cultivated, and the inhabitants are affable, and generally of the Greek church. The beſt parts belong to a monaſtery. The greateſt inconvenience is the want of wood. It is 30 miles in circumference. Lon. 26. 15. E. Lat. 36. 30. N.

MORGUES, Matthew DE, Sieur de St Germain, preacher to Lewis XIII. and almoner to Mary de Medicis, was born in Languedoc, in 1582. He wrote the *Life of Lewis the Juſt*, and ſeveral ſevere ſatires againſt Cardinal Richelieu; particularly one in defence of Mary de Medicis, whom he followed out of the kingdom, and did not think it ſafe to return till after Richelieu's death. He died in 1670.

MORHAM, a ſmall pariſh of Scotland, in Eaſt Lothian, about 3 miles form Haddington; 2½ miles long from E. to W. and not quite a mile broad; containing about 1400 Scots acres. The ſoil is moſtly fertile, and well cultivated. The population, in 1791, was 190; decreaſe 155 ſince 1755, owing to the union of ſmall farms.

MORHANGE, a town of France, in the dep. of Moſelle, and late duchy of Lorrain, 24 miles NE. of Nanci, and 200 E. of Paris. Lon. 6. 42. E. Lat. 48. 56. N.

MORHOFF, Daniel George, a very learned German, born at Wiſmar in Mecklenburgh, in 1639. The duke of Holſtein, when he founded an univerſity at Kiel, made him profeſſor of eloquence and poetry there in 1665, and afterwards of hiſtory; and, in 1680, librarian to the univerſity. He was the author of many works, as orations, diſſertations, theſes, and poems; but his chief work was his *Polyhiſtor, ſive de notitia auctorum et rerum commentarii*, firſt publiſhed at Lubec in 1688; which has been greatly enlarged ſince his death in 1691, and gone through ſeveral editions.

MORI, a village of Upper Auſtria, 5 miles SW. of Rovereno, where the Auſtrians were attacked in their camp by the French under Gen. Dubois, and defeated, on the 14th Sept. 1796; but Dubois was killed in the action.

MORIAH, an eminence of Jeruſalem, on which Abraham went to offer his ſon, and David intended to build the temple. The threſhing floor of Araunah was upon it, originally narrow, ſo as ſcarce to contain the temple, but enlarged by ramparts, and ſurrounded with a triple wall, ſo as to add great ſtrength to the temple. It may be conſidered as a part of Mount Sion, to which it was joined by a bridge and gallery. *Joſephus.*

MORIAMME, a town of France, in the dep. of the Sambre and Meuſe, and ci-devant county of Namur; 10 miles SE. of Charles.

MORICE, Sir William, an Engliſh gentleman, who aſſiſted his relation General MONK in bringing about the reſtoration of the Britiſh monarchy. He was made ſecretary of ſtate, which he reſigned in 1668. He wrote a work entitled, "The Common Right of the Lord's Supper aſſerted;" Lond. 4to, 1651, and fol. 1660.

MORIENNE. See MAURIENNE.

MORIENVAL, a town of France, in the dep. of Oiſe; 4½ miles N. of Creſpy.

* **MORIGEROUS.** *adj.* [*moriger*, Lat.] Obedient; obſequious.

MORIGNO, a populous town of Albania.

MORILLES, a kind of muſhroom, about the bigneſs of a walnut, pierced with holes like a honey-comb, and ſaid to be good for creating an appetite. They are alſo accounted reſtorative, and frequently uſed in ſauces and ragouts.

MORILLOS, Bartholomew, a native of Seville in Spain, born in 1613. After having cultivated painting with ſucceſs in his own country, he travelled into Italy, where he was greatly admired for a manner peculiar to himſelf, and capable of producing a wonderful effect. The Italians compared him to the celebrated Paul Veroneſe. On his return to Spain, Charles II. brought him to court, intending to make him his firſt painter; but he declined the offer. He died in 1685, aged 72.

(1.) **MORIN**, John Baptiſt, phyſician and regius profeſſor of mathematics at Paris, was born at Villefranche in Beauſolois, in 1583. After commencing M. D. at Avignon, he went to Paris, and lived with Claude Dormi biſhop of Boulogne, who ſent him to examine the mines of Hungary; and thereby gave occaſion to his firſt production, *Mundus ſublunaris anatomia*, publiſhed in 1619. Upon his return to the biſhop, he contracted an attachment to judicial aſtrology, concerning which he furniſhed the world with many ridiculous ſtories, and wrote a great number of books not worth enumerating. He died in 1656, before he had finiſhed the favourite labour of his life, his *Aſtrologia Gallica*. Louiſa Maria de Gonzaga, queen of Poland, gave 2000 crowns to carry on the edition; and it appeared at the Hague in 1661, in one vol. folio, with two dedications, one to Jeſus Chriſt, and another to the queen of Poland.

(2.) MORIN, John, a very learned Frenchman, born at Blois, of Proteſtant parents, in 1591; but converted by Card. du Peron to the Catholic religion. He publiſhed, in 1626, Exercitations upon the original of Patriarchs and Primates, and the ancient uſage of eccleſiaſtical cenſures; dedicated to pope Urban VIII. In 1628, he ſuperintended the edition of the Septuagint Bible, with Nobilus's verſion;

verſion; and prefixed to it a preface, in which he treats of the authority of the Septuagint, and prefers the verſion made at Rome by order of Sixtus V. to the preſent Hebrew text, which he affirms has been corrupted by the Jews. About the ſame time he gave a French Hiſtory of the deliverance of the church by the emperor Conſtantine, and of the temporal greatneſs conferred on the Roman church by the kings of France. He afterwards publiſhed Exercitations upon the Samaritan Pentateuch; and reviſed the Samaritan Pentateuch for the Polyglot then preparing at Paris. He was greatly careſſed at Rome, to which he was invited by Card. Barberini, and whence, after living nine years, he was recalled by Card. Richelieu, and died at Paris in 1659. His works are very numerous; and ſome of them as much valued by Proteſtants as Papiſts for their oriental learning.

(3.) **Morin**, John, a learned French eccleſiaſtic, born at Meung, near Orleans, in 1705. In 1732 he was appointed profeſſor of philoſophy at Chartres. In 1750 the Bp. of Chartres rewarded his long attention to claſſical learning by a canonry in the cathedral. In 1743, Morin publiſhed his *Mecaniſme Univerſel*, one vol. 12mo, which contains much information, but more conjecture. His next work was a *Treatiſe on Electricity*, publiſhed in 1748. His third and laſt performance was an anſwer to the Abbé Nollet, who had attacked his opinions on electricity. He often correſponded with the academies of ſciences at Paris and Rouen. He diſplayed the virtues of the prieſt and the philoſopher to his laſt hour. He died at Chartres, 28th March 1764, aged 59.

(4.) **Morin**, Lewis, M. D. was born at Mans in 1635. He went on foot to Paris to ſtudy philoſophy, and collected herbs during the journey. He afterwards ſtudied phyſic, and lived like an anchorite; bread and water, or a few fruits, being his whole ſubſiſtence. Paris was to him a hermitage, with this exception, that it furniſhed him with books, and with the converſation of the learned. He received the degree of M. D. in 1662. His reputation made Mad. de Guiſe chooſe him for her firſt phyſician, and the Academy of Sciences for one of its members. He died A. D. 1715, aged 80. A long and vigorous life, with a gentle and eaſy death, were the rewards of his temperance. Religion and the duties of his ſtation occupied his whole time. No part of it was ſpent in viſiting. He left a library valued at 20,000 crowns, an herbal, and a cabinet of medals; which ſeem to have been his whole fortune. An index to Hippocrates, in Greek and Latin, much more copious and better finiſhed than that of Pinus, was found among his papers.

(5.) **Morin**, Peter, a learned French critic, born at Paris in 1531. He went into Italy, and was employed by the learned Paul Manutius in his printing-houſe at Venice.—He afterwards taught Greek and coſmography at Vicenza, whence he was called to Ferrara by the duke. St Charles Borromeus, informed of his profound knowledge in eccleſiaſtical antiquities, of his diſintereſtedneſs, of his zeal and piety, offered him his friendſhip, and engaged him to go to Rome in 1575. The popes Gregory XIII. and Sixtus V. employed him on an edition of the Septuagint, 1587, and in one of the Vulgate, 1590, in folio. He alſo ſpent much of his time on an edition of the Bible tranſlated from the Septuagint, and publiſhed at Rome, 1588, in folio; on an edition of the Decretals to the time of Gregory VII. publiſhed at Rome, 1591; and on a Collection of General Councils, likewiſe publiſhed at Rome, 1608, 4 vols. He died at Rome 1608, aged 77. His character was open, ſimple, ſincere, gentle, and honeſt; his temper was equal and agreeable. He left behind him *Un Traité de bon uſage des Sciences*, and ſome other writings, publiſhed by F. Quetif, a Dominican friar, in 1675. His works diſplay great reſearch and excellent principles.

(6.) **Morin**, Simon, a celebrated fanatic of the 17th century, born at Richemont, near Aumale. He had been clerk to Mr Charron, general paymaſter of the army, but, being ignorant and illiterate, fell into great errors. After broaching his whimſies in converſation, he got them privately printed, in 1647, under the title of *Penſées de Morin dediées au Roi*. This book is a medley of conceit and ignorance, and contains the chief errors which were afterwards condemned in the Quietists; but Morin carries them to a much greater length; for he affirms, "that the moſt enormous ſins do not remove a ſinner from the ſtate of grace, but ſerve on the contrary to humble the pride of man." He adds, "that there would ſoon be a general reformation in all nations, effected by the ſecond coming of Jeſus Chriſt, and *Morin incorporated with him*."—He was in priſon at Paris when Gaſſendi's friends were writing againſt the aſtrologer John Baptiſt Morin (ſee N° 1.), whom they upbraided with being the brother of this fanatic. This was about 1650; after which Simon was ſet at liberty as a viſionary, and ſuffered to continue ſo till 1661, when Des Marets de St Sorlin, who, though a fanatic and viſionary himſelf, had conceived a violent averſion to him, diſcovered his whole ſcheme, and had him taken up. Des Marets pretended to be one of his diſciples, and carried his treachery ſo far as to acknowledge him for "the Son of man riſen again." This ſo pleaſed Morin, that he conferred upon him the office of being his harbinger, calling him *John the Baptiſt revived*. Then Des Marets impeached him; upon which Morin was tried, and condemned to be burnt alive. This barbarous ſentence was executed at Paris, March 14th, 1663; and after making the *amende honorable* in his ſhirt, with a cord about his neck and a torch in his hand, he was burnt alive, together with his *Penſées*, and all his papers; and his aſhes were thrown into the air. His accomplices, too, were condemned to aſſiſt at his execution, and to ſerve in the galleys for life, after having been whipped by the hangman, and marked with a burning iron with *fleurs de lis* upon both ſhoulders. Morin gave out that he would riſe again the third day; which made many gather together at the place where he was burnt. He died with remarkable reſolution.

(7.) **Morin**, Stephen, miniſter of the Proteſtant reformed religion at Caen, his birth place, was, for his learning, admitted a member of the Academy of Belles Lettres in that city, notwithſtanding an expreſs law which excluded Proteſtants. After the revocation of the edict of Nantes, he retired to Leyden in 1685, and thence to Amſterdam, where he was appointed profeſſor of oriental languages. He died in 1700, aged 75. He publiſhed eight diſſertations in Latin on ſubjects of antiquity, which are extremely curious. The Dordrecht edition of 1700, 8vo, is the beſt. He wrote likewiſe the life of Samuel Bochart.

(8.) **Morin**, Henry, ſon of the preceding, was born at St Pierre Sur Dive, in Normandy, and became a Roman Catholic after he had been a Proteſtant miniſter. He was author of ſeveral diſſertations in the Memoirs of the Academy of Inſcriptions, of which he was a member. He died at Caen, on the 16th July 1728, aged 60, much eſteemed.

(9.) **Morin**, in geography, a river of France, which runs into the Marne, near Meux.

MORINA, in botany, a genus of the monogynia order, belonging to the diandria claſs of plants; and in the natural method ranking under the 48th order, *Aggregatæ*. The corolla is unequal; the calyx of the fruit is monophyllous and dented; that of the flower bifid; there is one ſeed under the latter.

MORINDA, in botany, a genus of the monogynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 48th order, *Aggregatæ*. The flowers are aggregate and monopetalous; the ſtigmata bifid; fruit plums aggregate, or in cluſters.

(1.) **MORINGEN**, a town of Bavaria, 4 miles S. of Friedberg, and 13 NNE. of Landſberg.

(2.) **Moringen**, a town of Saxony, in Calenberg.

(3.) **Moringen**, a town of Suabia, in Furſtenberg.

MORINI, an ancient nation of Gallia Belgica, who lived on the coaſt of the Britiſh Ocean. They were ſtyled *extremi hominum* by the Romans, from their ſituation on the extremities of Gaul. They had two cities. See Morinorum, § 1 and 2.

MORINIERE, Adrian Claud Le Fort, De la, an elegant French writer, born at Paris in 1696. He wrote, 1. *Choix des Poeſies Morales*: 2. *Bibliotheque Poetique*: 3. *Paſſe-Tems Poetiques, Hiſtoriques, et Critiques*. He died in 1768.

(1.) **MORINORUM Castellum**, in ancient geography, or ſimply Castellum (*Antonine*), a city of Gallia Belgica, belonging to the Morini, ſituated on an eminence, with a ſpring of water on its top; now called Mont Cassel, in Flanders.

(2.) **Morinorum Civitas**, a city of the Morini, in Gallia Belgica; now called Terouenne, ſeated on the Lis.

* **MORION.** *n. ſ.* [Fr.] A helmet; armour for the head; a caſque.—For all his majeſty's ſhips a proportion of ſwords, targets, *morions*, and cuiras of proof, ſhould be allowed. *Raleigh.*—

And creſted *morions* with their plumy pride.
Dryden.

(1.) * **MORISCO.** *n. ſ.* [*moriſco*, Spaniſh.] A dancer of the morris or mooriſh dance.—

I have ſeen
Him caper upright like a wild *moriſco*,
Shaking the bloody darts. *Shak. Henry* VI.

(2.) **Morisco.** See Moresk.

MORISON, Robert, M. D. phyſician and profeſſor of botany at Oxford, was born at Aberdeen in 1620, bred at the univerſity there, and taught philoſophy for ſome time in it; but became chiefly famous for his ſkill in botany. The civil wars obliged him to leave his country, after he had ſignalized his zeal for the king, and his courage, in a battle fought between the inhabitants of Aberdeen and the Preſbyterian troops, on the bridge of Aberdeen, in which he received a dangerous wound on the head. As ſoon as he was cured of it, he went into France; and fixing at Paris, he applied aſſiduouſly to botany and anatomy. He was introduced to the duke of Orleans, who gave him the direction of the royal gardens at Blois. He exerciſed this office till the death of that prince, and afterwards went over to England in 1660. Charles II. to whom the duke of Orleans had preſented him at Blois, ſent for him to London, and gave him the titles of his *phyſician*, and *profeſſor royal of botany*, with a penſion of 200l. a year. The *Præludium Botanicum*, which he publiſhed in 1669, procured him ſo much reputation, that the univerſity of Oxford invited him to the profeſſorſhip of botany in 1669; which he accepted, and acquitted himſelf in it with great ability. He died at London in 1683, aged 63. He publiſhed a ſecond and third part of his Hiſtory of Plants, in 2 vols. folio, entitled, *Plantarum Hiſtoria Oxonienſis Univerſalis*. The firſt part of this excellent work was not printed; and it is not known what became of it.

MORISONIA, in botany, a genus of the polyandria order, belonging to the monadelphia claſs of plants; and in the natural method ranking under the 25th order, *Putamineæ*. The calyx is ſingle and bifid; the corolla tetrapetalous; there is one piſtil; the berry has a hard bark, is unilocular, polyſpermous, and pedecellated.

Morison's Haven, or **Aitchison's Haven**, a village of Scotland, in Eaſt Lothian, in the pariſh of Preſtonpans, with a harbour, the only one in the pariſh, anciently called *Newhaven*. See Acheson's Haven. It lies a little W. of Preſtonpans, has about 10 feet water at ſpring-tides, and is reckoned one of the ſafeſt harbours in the Frith of Forth. This port has a cuſtom-houſe, the juriſdiction of which extends from the Figgat Bourn on the W. to the mouth of the Tyne on the E. Manufactures of ſtone and brown wares are carried on at the village, which employ about 20 men and 15 boys. Moriſon's Haven is ſo called from a family of that name, formerly proprietors of Preſton Grange. It has a mill, turned by ſea water, for grinding flint for the potteries.

MORRIS's Bay, a bay of Antigua, on the SW.

MORKASTOFF, a town of Germany, in Auſtria, 9 miles S. of Laab.

* **MORKIN.** *n. ſ.* [Among hunters.] A wild beaſt, dead through ſickneſs or miſchance. *Bailey.*

MORLAAS, or **Morlas**, a town of France, in the dep. of the Lower Pyrenees; 8 miles NE. of Pau, and 17 NW. of Tarbe.

MORLACCHI. See Morlachians.

MORLACHIA, a mountainous country of Maritime Auſtria, in Dalmatia; bounded on the N. and S. by Croatia and Boſnia, and on the E. and W. by the Adriatic Sea, and the Morazza. It is watered by the Kirka, Critina, and Narenta.

MORLACHIANS, MORLACKS, or MORLACCHI, the inhabitants of MORLACHIA. They chiefly inhabit the pleaſant valleys of Koter, along the rivers Kerba, Cettina, Narenta, and among the inland mountains of Dalmatia. They are by ſome ſaid to be of Walachian extraction, as is indicated by their name; Morlachia being a contraction of *Mauro-Walachia*, that is, *Black Walachia:* and the Walachians are ſaid to be deſcendants of the ancient Roman colonies planted in theſe countries. This, however, is denied by the Abbé Fortis, who publiſhed a volume of travels into that country. He informs us, that the origin of the Morlacchi is involved in the darkneſs of barbarous ages, together with that of many other nations, reſembling them ſo much in cuſtoms and language, that they may be taken for one people, diſperſed in the vaſt tracts from the Adriatic ſea to the frozen ocean. The emigrations of the various tribes of the SLAVI, who, under the names of *Scythians*, *Geti*, *Goths*, *Hunns*, *Slavini*, *Croats*, *Avari*, and *Vandals*, invaded the Roman empire, and particularly the Illyrian provinces, during the decline of the empire, muſt have ſtrangely perplexed the genealogies of the nations which inhabited it, and which perhaps removed thither in the ſame manner as at more remote periods of time. The remainder of the Ardiæi, Autariati, and other Illyrian people, anciently ſettled in Dalmatia, who could not reconcile themſelves to a dependence on the Romans, might nevertheleſs form an union with foreign invaders reſembling themſelves in dialect and cuſtoms; and, according to our author, many families driven out of Hungary by the Moguls under Jenghiz Khan and his ſucceſſors, might people the deſerted valleys among the mountains of Dalmatia. This conjecture is alſo ſomewhat confirmed by the traces of the Calmuck Tartars, ſtill to be found in a part of that country called ZARA. With regard to the etymology of the name, the Abbé obſerves, that the Morlacchi generally call themſelves, in their own language, VLASSI; a national term, of which no veſtige is found in the records of Dalmatia till the 13th century. It ſignifies *powerful men*, or *men of authority;* and the denomination of *Moro Vlaſſi*, now corrupted to *Morlacchi*, may perhaps point out the original of the nation. This word may poſſibly ſignify the *conquerors that came from the ſea; Moor*, in all the dialects of the Sclavonian language, ſignifying the *ſea*. The Morlacchi are ſo different from the inhabitants of the ſea-coaſts in dialect, dreſs, diſpoſitions, and cuſtoms, that they ſeem clearly to be of a different original, or at leaſt the colonies muſt have ſettled at ſuch diſtant periods from each other, that they have had time to alter in a great meaſure their national character. There is alſo a remarkable diverſity among the Morlacchi themſelves in ſeveral diſtricts, probably on account of the different countries from whence they came. With regard to their character, they are much miſrepreſented by their maritime neighbours. The inhabitants of the ſea coaſt of Dalmatia tell many frightful ſtories of their avarice and cruelty: but theſe, in our author's opinion, are all either of an ancient date, or, if any have happened in latter times, they ought rather to be aſcribed to the corruption of a few individuals, than to the bad diſpoſition of the nation in general; and though thieviſh tricks are frequent among them, he informs us, that a ſtranger may travel ſecurely through their country, where he is faithfully eſcorted, and hoſpitably treated. The greateſt danger is from the *Haiducks* or *Banditti*, of whom there are great numbers among the woods and caves of theſe dreadful mountains on the confines. (See HAIDUCKS.) There, ſays our author, a man ought to get himſelf eſcorted by a couple of theſe "*honeſt fellows;*" for they are not capable of betraying him, although a banditti; and their ſituation is commonly more apt to raiſe compaſſion than diffidence. They live among the wolves, wandering from one precipice to another, expoſed to the ſeverity of the ſeaſons, and often languiſh in want of the neceſſaries of life, in the moſt hideous and ſolitary caverns. Yet they very ſeldom diſturb the tranquillity of others, and prove always faithful guides to travellers; the chief objects of their rapine being ſheep and oxen, to ſupply themſelves with food and ſhoes. Sometimes it happens, that, in their extreme neceſſity, the Haiducks go in parties to the ſhepherds cottages, and rudely demand ſomething to eat; which they immediately take by force, if any heſitation is made. It is ſeldom indeed that they meet with a refuſal, or with reſiſtance, as their reſolution and fury are well known to be equal to the ſavage life they lead. The Haiducks look upon it as a meritorious action to kill the Turks; being led to this not only by their natural ferocity, but inflamed by a miſtaken zeal for religion, and the diſcourſes of their fanatic prieſts. But the Morlacchi are open and ſincere to ſuch a degree, that they would be taken for ſimpletons in any other country; and they have accordingly been ſo often duped by the Italians, that *the faith of an Italian*, and *the faith of a dog*, are ſynonymous among them. They are very hoſpitable to ſtrangers; and their hoſpitality is equally conſpicuous among the rich and poor. The rich prepares a roaſted lamb or ſheep, and the poor with equal cordiality offers whatever he has: nor is this generoſity confined to ſtrangers, but generally extends itſelf to all who are in want. When a Morlack is on a journey, and comes to lodge at a friend's houſe, the eldeſt daughter of the family, or the new married bride, if there happens to be one, receives and kiſſes him when he alights from his horſe, or at the door of the houſe: but a foreigner is rarely favoured with theſe female civilities; on the contrary, the young women hide themſelves, and keep out of the way. The Morlacchi have little notion of domeſtic economy, and often conſume in a week as much as would be ſufficient for ſeveral months, whenever any occaſion of merriment occurs. A marriage, the holiday of a ſaint, the arrival of relations or friends, or any other joyful incident, conſumes all the proviſions in the houſe. Yet they are great economiſts of their wearing apparel. Nothing but an abſolute impoſſibility hinders a Morlack from being punctual; and if he cannot repay the money he borrowed at the appointed time, he carries a ſmall preſent to his creditor, and requeſts a longer term. Thus, from term to term, and preſent to preſent, he often pays double what he owed. Friendſhip is laſting among the Morlacchi. They have even made it a kind of religious point, and tie the ſacred bond at the foot of the altar. The Sclavonian ritual contains a particular benediction for the ſolemn union of two male or two female friends in the preſence of the congregation. The male friends thus united are called *Pobratimi*, and the female *Poſeſtreme*, which mean half-brothers and half-ſiſters. Their duties are, to aſſiſt each other in every caſe of need or danger, to revenge mutual wrongs, and ſuch like. The enthuſiaſm is often carried ſo far as to riſk, and loſe lives for each other, although theſe ſavage friends are not celebrated like Pylades and Oreſtes. If diſcord happens to ariſe between two friends, it is talked of over all the country as a ſcandalous novelty; and there have been ſome recent examples of it, which the old Morlacchi attribute to their intercourſe with the Italians. But as the friendſhips of the Morlacchi are ſtrong, ſo their quarrels are commonly unextinguiſhable. They paſs from father to ſon; and the mothers put their children in mind of their duty to revenge their father, if he has had the misfortune to be killed, and to ſhow them often the bloody ſhirt and arms of the dead. A Morlack is naturally inclined to do good to his fellow creatures, and is full of gratitude for the ſmalleſt benefit; but implacable if inſulted or injured. A Morlack who has killed another of a powerful family, commonly ſaves himſelf by flight, and keeps out of the way for ſeveral years. If during that time he had been fortunate enough to eſcape the ſearch of his purſuers, and has got a ſmall ſum of money, he endeavours to obtain pardon and peace; and that he may treat about the conditions in perſon, he aſks and obtains a ſafe conduct, which is faithfully maintained, though only verbally granted. Then he finds mediators; and, on the appointed day, the relations of the two hoſtile families aſſemble, and the criminal is introduced, dragging himſelf along on his hands and feet, the muſket, piſtol, or cutlaſs, with which he committed the murder, hung about his neck; and while he continues in that humble poſture, one or more of the relations recites a panegyric on the dead, which ſometimes rekindles the flames of revenge, and puts the poor proſtrate in no ſmall danger. It is the cuſtom in ſome places for the offended party to threaten the criminal, holding all kinds of arms to his throat, and, after much intreaty, to conſent at laſt to accept of his ranſom. Theſe pacifications coſt dear in Albania; but the Morlacchi make up matters ſometimes at a ſmall expenſe; and every where the buſineſs is concluded with a feaſt at the offender's charge. The Morlacks, whether they be of the Roman or of the Greek church, have very ſingular ideas about religion; and the ignorance of their teachers daily augments this evil. They are as firmly perſuaded of the reality of witches, fairies, inchantments, nocturnal apparitions, and ſortileges, as if they had ſeen a thouſand examples of them. Nor do they make the leaſt doubt about the exiſtence of vampires; and attribute to them, as in Tranſylvania, the ſucking the blood of infants. Therefore, when a man dies ſuſpected of becoming a vampire, or *vukodlak*, as they call it, they cut his hams, and prick his whole body with pins; pretending, that after this operation he cannot walk about. There are even inſtances of Morlacchi, who, imagining that they may poſſibly thirſt for childrens blood after death, intreat their heirs, and ſometimes oblige them to promiſe, to treat them as vampires when they die. The boldeſt Haiduk would fly trembling from the apparition of a ſpectre, ghoſt, phantom, or ſuch like goblins as the heated imaginations of credulous and ſuperſtitious people lead them to think they ſee. The women ſtill more timorous, and ſome of them, by often hearing themſelves called *witches*, actually believe they are ſo. Great diſcord reigns in Morlachia, between the Latin and Greek communion, which their reſpective prieſts fail not to foment, to tell a thouſand little ſcandalous ſtories of each other. The churches of the Latins are poor, but clean; thoſe of the Greeks are poor, but ſhamefully ill kept. Our author has ſeen the curate of a Morlack village ſitting on the ground in the church-yard, to hear the confeſſion of women on their knees by his ſide: a ſtrange poſture indeed! but a proof of the innocent manners of thoſe good people, who have the moſt profound veneration for their ſpiritual paſtors, who, on their part, frequently make uſe of a diſcipline rather military, and correct the bodies of their offending flock with the cudgel. They alſo impoſe on the credulity of thoſe poor mountaineers, by ſelling certain ſuperſtitious ſcrolls, called *zapiz*, on which they write ſacred names, and ſometimes add others very improperly joined. The virtues attributed to theſe zapiz are much of the ſame nature as thoſe which the Baſilidians attributed to their monſtrouſly cut ſtones. (See BASILIDIANS.) The Morlacchi carry them ſewed in their caps to cure or prevent diſeaſes, and tie them to the horns of their oxen. The compoſers of the trumpery take every method to maintain the credit of their profitable trade, in ſpite of its abſurdity, and the frequent proofs of its inutility. And ſo great has their ſucceſs been, that not only the Morlacchi, but even the Turks near the borders, provide themſelves plentifully with zapiz from the Chriſtian prieſts, which not a little increaſes their income, as well as the reputation of the commodity. The Morlacchi have alſo much devotion, and many of the ignorant people in Italy have little leſs, to certain copper and ſilver coins of the low empire; or to Venetian cotemporary pieces, which paſs among them for medals of St Helen; and they think they cure the epilepſy and ſuch like. They are equally fond of an Hungarian coin called *petizza*, which has the virgin and child on the reverſe; and one of theſe is a moſt acceptable preſent to a Morlack. The bordering Turks not only keep with devotion the ſuperſtitious zapiz, but frequently bring preſents, and cauſe maſſes to be celebrated to the images of the Virgin; which is doubtleſs in contradiction to the Alcoran; yet when ſaluted, in the uſual manner in that country, by the name of *Jeſus*, they do not anſwer. Hence, when the Morlacchi, or other travellers, meet them on the confines, they do not ſay, *Huaglian Iſſus*, "Jeſus be praiſed;" but *Huaglian Bog*, "God be praiſed." Innocence, and the natural liberty of paſtoral ages, are ſtill preſerved among the Morlacchi. Pure cordiality of ſentiment is not there reſtrained by circumſtances. A young handſome Morlack girl who meets a man of her diſtrict on the road, kiſſes him affectionately, without the leaſt immodeſt thought; and our author has ſeen all the women and girls, all the young men and old, kiſſing one another as they came into the church-yard on a holiday, on the road, and at the fairs in the maritime towns. In times of feaſting and merriment, beſides the kiſſes, ſome other little liberties are taken, which we would not reckon decent. From this toying, however, amours often take their beginning, and frequently end in marriage when the lovers are agreed. For it very rarely happens in places diſtant from the coaſt, that a Morlack carries off a girl againſt her will, or diſhonours her: and were ſuch attempts made, the young woman would be able to defend herſelf; the women in that country being little leſs robuſt than the men. But the cuſtom is for the woman herſelf to appoint the time and place of being carried off; in order to extricate herſelf from other ſuitors, from whom ſhe may have received ſome love token, as a braſe ring, a little knife, or ſuch like. The dreſs of the unmarried women is the moſt complex and whimſical, in reſpect to the ornaments of the head; for when they are married they are not allowed to wear any thing but a handkerchief tied about it. The girls uſe a ſcarlet cap, to which they commonly hang a veil falling down on the ſhoulders, as a mark of virginity. The better ſort adorn their caps with ſtrings of ſilver coins, among which are frequently ſeen very ancient and valuable ones; they have alſo ear-rings of a very curious work, and ſmall ſilver chains with the figures of half moons faſtened to the ends of them. But the poor content themſelves with plain caps; or if they have any ornaments, they conſiſt only of ſmall exotic ſhells, round glaſs beads, or bits of tin. The principal merit of theſe caps is to attract attentively the noiſe they make on the leaſt motion of their heads. Hence half moons of ſilver, or of tin, little chains and hearts, falſe ſtones and ſhells, together with all kind of ſplendid trumpery, are readilly admitted into their head-dreſs. In ſome diſtricts, they fix tufts of various coloured feathers reſembling two horns on their caps; in others, tremulous plumes of glaſs; and in others, artificial flowers; and in the variety of thoſe capricious ornaments, ſometimes a fancy not inelegant is diſplayed. Their holiday ſhifts are embroidered with red ſilk, and ſometimes with gold, which they work while they attend their flocks; and it is very nicely executed. Both old and young women wear about their necks large ſtrings of round glaſs-beads, of various ſize and colour; and many rings of braſs, tin, or ſilver, on their fingers. Their bracelets are of leather covered with tin or ſilver; and they embroider their ſtomachers, or adorn them with beads or ſhells. A broad woollen girdle ſurrounds their petticoat, which is commonly decked with ſhells, and of blue colour, called *modrina*. Their gown, called *ſadak*, as well as petticoat, is of a kind of ſerge; and both reach near to the ankle. They uſe no modrina in ſummer, and only wear the ſadak without ſleeves over a linen petticoat or ſhift.—The girls always wear red ſtockings; and their ſhoes are like thoſe of the men, called *opanke*. The ſole is of undreſſed ox-hide, and the upper part of ſheep-ſkin thongs knotted, which they call *opute*. Theſe they faſten above the ankles, like the ancient cothurnus. (See BUSKIN, § 2, and COTHURNUS.) Even the richeſt unmarried women are not permitted to wear any other ſhoes; though after marriage they may lay aſide the opanke, and uſe the Turkiſh ſlippers. The girls keep their hair treſſed under their caps, but when married they let it fall diſhevelled on the breaſt; ſometimes they tie it under the chin; and always have medals, beads, or bored coins, in the Tartar or American mode, twiſted amongſt it. An unmarried woman, who falls under the imputation of want of chaſtity, runs the riſk of having her red cap torn off her head publicly in church by the curate, and her hair cut by ſome relation, in token of infamy. Hence, thoſe who fall into an illicit amour, commonly lay aſide the badge of virginity, and remove into another part of the country. Nothing is more common among the Morlacchi than marriages concluded by the old people of the reſpective families, when the young parties live at a great diſtance, and neither ſee nor know each other; and the ordinary motive of theſe alliances is the ambition of being related to a numerous and powerful family, famous for having produced valiant men. The father of the future bridegroom, or ſome other near relation of mature age, goes to aſk the young man, or rather a young woman of ſuch a family, not having commonly any determinate choice. Upon this all the girls of the houſe are ſhown to him, and he chooſes which pleaſes him beſt, though he generally reſpects the right of ſeniority. A denial in ſuch caſe is very rare; nor does the father of the maid inquire much into the circumſtances of the family that aſks her. Sometimes a daughter of the maſter is given in marriage to the ſervant or tenant. On theſe occaſions, however, the Morlacchi girls enjoy a privilege which ours would alſo wiſh to have, as in juſtice they certainly ought. For he who acts by proxy, having obtained his ſuit, is obliged to go and bring the bridegroom; and if, on ſeeing each other, the young couple are content, the marriage is concluded, but not otherwiſe. In ſome parts it is the cuſtom for the bride to go to ſee the houſe and family of the propoſed huſband, before ſhe gives a definitive anſwer; and if the place or perſons are diſagreeable to her, ſhe is at liberty to annul the contract. But if ſhe is contented, ſhe returns to her father's houſe, eſcorted by the bridegroom and neareſt relations. There the marriage day is appointed; on which the bridegroom comes to the bride's houſe, attended by all his friends of greateſt note, who on this occaſion are called *ſvati*, and are all armed, and on horſeback, in their holiday clothes, with a peacock's feather in their caps, which is the diſtinctive ornament uſed by thoſe who are invited to weddings. The company goes armed, to repulſe any attack or ambuſh that might be intended to diſturb the feaſt. The bride is conducted to a church veiled, and ſurrounded by the ſvati on horſeback; and the ſacred ceremony is performed amidſt the noiſe of muſkets, piſtols, barbaric ſhouts and acclamations, which continue till ſhe returns to her father's houſe, or to that of her huſband, if not far off. Each of the ſvati has his particular inſpection, as well during the cavalcade as at the marriage feaſt, which begins immediately on their return from church. The parvinaz precedes all the reſt, ſinging ſuch ſongs as he thinks ſuitable to the occaſion. Abbe Fortis deſcribes a number of ridiculous ceremonies that follow, which are not worth quoting. The firſt day's entertainment is ſometimes made at the bride's houſe, but generally at the bridegroom's, whither the ſvati haſten immediately after the nuptial benediction. The moſt extravagant abundance reigns at theſe feaſts; and each of the ſvati contributes, by ſending a ſhare of proviſions. All ſorts of domeſtic fowls, kid, lambs, and ſometimes veniſon, are heaped in prodigal quantities upon their tables, but the Morlachians never eat veal. This abhorrence to calves fleſh is very ancient among them. St Jerom, againſt Jovinian, takes notice of it; and Tomeo Marnavich, a Boſnian writer, who lived in the 17th century, ſays, that the Dalmatians, uncorrupted by the vices of ſtrangers, abſtain from eating calves fleſh, as an unclean food, even to his days. The women relations never dine at table with the men, but always by themſelves. After dinner, they paſs the reſt of the day in dancing, ſinging ancient ſongs, and in games of dexterity, or of wit and fancy; and in the evening, at a convenient hour after ſupper, the three ritual healths having firſt gone round, viz. 1. The ſaint protector of the family; 2. The Holy Faith; and 3. A certain ſacred name; the knum accompanies the bridegroom to the matrimonial apartment, which commonly is the cellar or the ſtable, whither the bride is alſo conducted by the diveri and the ſtacheo; but the three laſt are obliged to retire, and the knum remains alone with the new-married couple. If there happens to be any bed prepared better than ſtraw, he leads them to it: and having untied the bride's girdle, he cauſes them both to undreſs each other reciprocally; after which he retires, and ſtands liſtening at the door, to announce the conſummation of the marriage; which he does by diſcharging a piſtol, and is anſwered by many of the company. The next day the bride, without her veil and virginal cap, dines at table with the ſvati, and is forced to hear the coarſe equivocal jeſts of her indelicate and ſometimes intoxicated company. Theſe nuptial feaſts, called *ſdrave* by the ancient Huns, and by the Morlacchi *ſdravize*, continue 3, 6, 8, or more days, according to the ability of the family. The new-married wife gets no inconſiderable profit in theſe days of joy; and it uſually amounts to much more than all the portion ſhe brings with her, which often conſiſts of nothing but her clothes and a cow; nay, ſometimes the parents, inſtead of giving money with their daughters, get ſomething from the bridegroom by way of price. The bride carries water every morning to waſh the hands of her gueſts as long as the feaſting laſts; and each of them throws a ſmall piece of money into the baſon after waſhing. The brides are alſo permitted to raiſe other little contributions among the ſvati, by hiding their ſhoes, caps, knives, or ſome other neceſſary part of their equipage, which they are obliged to ranſom by a piece of money, according as the company rates it. And, beſides all theſe voluntary and extorted contributions, each gueſt muſt give ſome preſent to the new married wife at taking leave the laſt day of the ſdraviſe; and then ſhe alſo diſtributes ſome trifles in return, ſuch as ſhirts, caps, handkerchiefs, and the like. The nuptials are almoſt preciſely the ſame through all the vaſt country inhabited by the Morlacchi; and thoſe in uſe among the peaſants on the coaſt of Dalmatia, Iſtria, and the iſlands, differ but little from them. Yet among theſe particular varieties, there is one of the iſland Zlarine, near Sebenico, remarkable enough; for there the ſtariſvat (whether drunk or ſober) muſt, at one blow with his naked broad ſword, ſtrike the bride's crown of flowers off her head, when ſhe is ready to go to bed. And in the iſland of Pago, in the village of Novoglia, there is a cuſtom more comical, and leſs dangerous, but equally ſavage. After the marriage-contract is ſettled, and the bridegroom comes to conduct his bride to church, her father or mother, in delivering her over to him, makes an exaggerated enumeration of her ill qualities: "Know, ſince thou wilt have her, that ſhe is good for nothing, ill-natured, obſtinate, &c." On which the bridegroom, affecting an angry look, turns to the young woman, with an "Ah! ſince it is ſo, I will teach you to behave better;" and at the ſame time regales her with a blow or a kick, or ſome piece of ſimilar gallantry, which is by no means figurative. And it ſeems in general, that the Morlack women, the inhabitants of the cities excepted, do not much diſlike a beating either from their huſbands or lovers. Our author gives a moſt diſguſting picture of the naſtineſs of the Morlachian women after marriage; and ſays, the mortifying manner in which they are treated by their huſbands, is both the cauſe and effect of this neglect of their perſons. He often lodged in Morlack houſes, and obſerved that the female ſex is univerſally treated with contempt. The pregnancy and births of thoſe women would be thought very extraordinary among us, where the ladies ſuffer ſo much, notwithſtanding all the care and circumſpection uſed before and after labour. But a Morlack woman neither changes her food nor interrupts her daily fatigue on account of her pregnancy; and is often delivered in the fields, or on the road, by herſelf; and takes the infant, waſhes it in the firſt water ſhe finds, carries it home, and returns the day after to her uſual labour, or to feed her flock. The infants, thus careleſsly treated in their tendereſt moments, are afterwards wrapt in miſerable rags, where they remain 3 or 4 months, under the ſame ungentle management; after which they are ſet at liberty, and left to crawl about the cottage till they learn to walk upright by themſelves; and at the ſame time acquire that ſingular degree of ſtrength and health with which the Morlacchi are endowed, when, without the leaſt inconvenience, they can expoſe their naked breaſts to the ſevereſt froſts and ſnow. The infants are allowed to ſuck their mother's milk till ſhe is with child again; though that ſhould not happen for 4, 5, or 6 years. The length of the breaſts of the Morlachian women is extraordinary; for it is certain, they can give the teat to their children over their ſhoulders, or under their arms. They let the boys run about, without breeches, in a ſhirt that reaches only to the knee, till the age of 13 or 14, following the cuſtom of Boſſina, ſubject to the Porte, where no capitation tax is paid for boys till they wear breeches, they being conſidered till then as children, not capable of earning their bread. On the occaſion of births, and eſpecially of the firſt, all the relations and friends ſend preſents of meat to the woman in child-bed, or rather to the woman delivered; and the family makes a ſupper of all thoſe preſents together. The women do not enter the church till 40 days after child-birth. The Morlacchi paſs their youth in the woods, attending their flocks and herds; and in that life of quiet and leiſure they often become dexterous in carving with a ſimple knife: they make wooden cups, and whiſtles adorned with fanciful bas-reliefs, which are not void of merit, and ſhow the genius of the people.

MORLAIS, or (1.) MORLAIX, } a town of France, in the dep. of Finiſterre, and ci-devant province of Bretagne, ſeated on the river. (N° 2.) It has an hoſpital and 3 churches, of which that of Notre Dame is a ſingular ſtructure. It has a conſiderable trade in linen, hemp, tobacco, &c. It lies 30 miles NE of Breſt, and 45 W. of St Brieux. Lon. 3. 46 W. Lat 48. 34. N.

(2.) Morlaix, a navigable river of France, in the dep. of Finiſterre, which runs into the Engliſh Channel at Morlaix. It has an iſland in its mouth, on which there is a fort, which defends the harbour.

MORLANE, a town of France, in the dep. of Lower Pyrenees; 12 m. E. of Orthez and 12 N. of Pau.

(1.) MORLAS. See Morlaas.

(2.) Morlas, a river of Wales in Caermarthen.

MORLENBACH, a town of Germany, in the circle of the Lower Rhine; 7 miles SE. of Heppenheim.

MORLEY, George, Bp. of Wincheſter, the ſon of Francis Morley, Eſq; was born at London in 1597; educated at Chriſt-church, Oxford, of which he had the canonry in 1641, and in 1642 was made D. D. He had alſo ſeveral preferments, of which he was deprived by the parliament in the beginning of 1648. K. Charles I. ſent for him to aſſiſt at the treaty of the Iſle of Wight. After the king's death he attended lord Capel at his execution, and then retired to Charles II. at the Hague, on whom he conſtantly waited till he went to Scotland, when Morley retired to Antwerp, where he read the ſervice of the church of England, as he afterwards did at Breda. At the Reſtoration he was firſt made dean of Chriſt-church, afterwards Bp. of Worceſter, and dean of the royal chapel. In 1662 he was tranſlated to Wincheſter, when he ſpent large ſums in repairing Farnham caſtle and his palace at Weſtminſter, and in purchaſing Wincheſter houſe at Chelſea. He died at Farnham-caſtle in 1684. He was a Calviniſt, and before the wars was thought a friend to the Puritans. He was pious and charitable, of a very exemplary life, but extremely paſſionate. He publiſhed ſeveral ſermons and other pieces.

* MORLING. Mortling. *n. ſ.* [*mort*, Fr.] Wool plucked from a dead ſheep.

MORLUNDA, a town of Sweden in Smaland.

MORMANDO, a town of Naples, in Calabria Citra, 16 miles NW. of Caſſano.

MORMANT, a town of France, in the dep. of the Seine and Marne; 10½ miles NE. of Melur.

* MORMO. *n. ſ.* [μορμω.] Bugbear; falſe terrour.

MOMORA, a town of France, in the dep. of the Stura, and ci-devant marquiſate of Saluzzo, in the late Piedmonteſe; ſeated on the Maira, 14 miles SW of Saluzzo.

* MORN. *n. ſ.* [*marne*, Saxon.] The firſt part of the day: the morning. *Morn* is not uſed but by the poets.—

The cock, that is the trumpet to the *morn*,
Doth, with his lofty and ſhrill-ſounding throat,
Awake the god of day. *Shak.*

Can you forget your golden beds,
Where you might ſleep beyond the *morn*? *Lee.*

Friendſhip ſhall ſtill thy evening feaſts adorn,
And blooming peace ſhall ever bleſs thy *morn*.
Prior.

MORNANT, a town of France, in the dep. of the Rhone and Loire; 10½ miles SSW. of Lyons.

MORNAY, Philip de, lord of Pleſſis-Marly, was born at Buhy or Biſhuy in Upper Normandy, Nov. 5th, 1549, and educated at Paris. He made a rapid progreſs in the learned languages, theology, and the belles lettres. He was at firſt deſtined for the church; but the principles of Calviniſm, which he had imbibed from his mother, effectually excluded him from eccleſiaſtical preferment. After the horrible maſſacre of St Batholomew he made the tour of Italy, Germany, England, and the Low Countries; and on his return joined the king of Navarre, then leader of the Proteſtant party, afterwards the celebrated Henry IV. This prince ſent him to conduct a negociation with Eliſabeth, Q. of England; and left him wholly to his own diſcretion in the management of that buſineſs. He was ſucceſsful in almoſt every negociation, and conducted them like an upright as well as able politician. He tenderly loved Henry IV; ſpoke to him on all occaſions as to a friend; and did every thing in his power to raiſe him to the throne. But when he renounced the Proteſtant faith, he reproached him in the bittereſt manner, and retired from court. Henry ſtill loved him, and was extremely affected with an inſult which he received in 1597 from one St Phal, who aſſaulted and left him for dead. Mornay's knowledge, probity, and valour, made him the ſoul of the Proteſtant party, and procured him the appellation of the *Pope of the Huguenots*. He defended their doctrines by ſpeech, writing, and military proweſs. One of his books on the *Iniquity of the Maſs*, having ſtirred up all the Catholic divines, he refuſed to make any reply to their criticiſms except in a public conference. This was appointed to be held in 1600, at Fountainbleau, where the court then was. The two champions were, Du Perron, Bp. of Evreux, and Mornay. After many arguments and replies on both ſides, the victory was adjudged to Du Perron. The Calviniſts, however, claimed the victory; and this conference, inſtead of putting an end to the differences, was productive of new quarrels among the controverſialiſts, and of much profane wit among the libertines. He retired to Saumur, an important place on the Loire, of which he was governor; his attention being conſtantly occupied in defending the Huguenots. When Lewis XIII. was making preparations againſt the Proteſtants, Mornay wrote him a letter, diſſuading him againſt ſuch a meaſure. His remonſtrances produced only his being deprived of the government of Saumur, in 1621. He died Nov. 11th, 1623, aged 74, in his barony of *Foret ſur Seure*, in Poitou. The Proteſtant cauſe never had an abler ſupporter, or one who did it more credit by his virtues and abilities. He wrote 1. *Un Traité de l' Euchariſte*, 1604, in folio. 2. *Un Traité de la verité de la Religion Chretienne*, 8vo. 3. *La Myſtere d'iniquiteé*, 4to. 4. *Un diſcours ſur le droit pretendu par ceux de la maiſon de Guiſe*, 8vo. 5. Intereſting *Memoirs* from 1572 to 1629, 4 vols 4to. 6. *Letters*; written with great ſpirit and good ſenſe. David des Liques publiſhed his life in 4to.

MORNBACHLIN, a river of Suabia.

(1.) MORNE AU DIABLE, a cape on the W. coaſt of Hiſpaniola. Lon. 72. 47. W. Lat. 19. 12. N.

(2.) MORNE GAROU, a very remarkable volcanic mountain on the iſland of St Vincent's in the Weſt Indies.

(3.) MORNE PAGOUA, a cape on the E. coaſt of Dominica. Lon. 61. 19. W. Lat. 15. 39. N.

(1.) * MORNING. *n. ſ.* [*morgen*, Teutonick; but our *morning* ſeems rather to come from *morn*.] The firſt part of the day, from the firſt appearance of light to the end of the firſt fourth part of the ſun's daily courſe.—One maſter Brook hath ſent your worſhip a *morning's* draught of ſack. *Shak.*—

By the ſecond hour in the *morning*
Deſire the earl to ſee me. *Shak.*

—*Morning* by *morning* ſhall it paſs over. *Iſa.* xxviii. 19.—What ſhall become of us before night, who are weary ſo early in the *morning*? *Taylor's Guide.*—The *morning* is the proper part of the day for ſtudy. *Dryden.*—Every *morning* ſees her early at her prayers. *Law.*

(2.) * MORNING. *adj.* Being in the early part of the day.—

She looks as clear
As *morning* roſes newly waſh'd with dew. *Shak.*

—Your goodneſs is as a *morning* cloud. *Hoſ.* vi. 5.—Let us go down after the Philiſtines by night, and ſpoil them until the *morning* light. 1 *Sam.* xiv 36.—

The twining jeſſamine and bluſhing roſe,
With laviſh grace their *morning* ſcents diſcloſe.
Prior.

All the night they ſtem the liquid way,
And end their voyage with the *morning* ray.
Pope's Odyſſey.

(3.) MORNING, (§ 1. *def.* 1.) is by others defined the time of ſun-riſing. The aſtronomers reckon morning, *mane*, from midnight to midday. Thus an eclipſe is ſaid to begin at 11 o'clock in the morning, &c.

* MORNING-GOWN. *n. ſ.* A looſe gown worn before one is formally dreſſed.—Seeing a great many in rich *morning gowns*, he was amazed to find that perſons of quality were up ſo early.
Addiſon.

(1.) * MORNING-STAR. *n. ſ.* The planet Venus when ſhe ſhines in the morning.—

Bright as doth the *morning-ſtar* appear.
Fairy Queen.

(2.) *The* MORNING-STAR is Venus when a little to the W. of the ſun; that is, when ſhe riſes a little before him. In this ſituation ſhe is called by the Greeks PHOSPHORUS; by the Latins LUCIFER, &c. See ASTRONOMY, *Index*.

(1.) MORO, a mountain of France, in the dep. of the Seſia, and late Piedmonteſe; 14 miles W. of Domo d'Oſſelo.

(2.) MORO, a river of Indoſtan, in Rantampour.

(3.) MORO FORTE, a caſtle of Cuba on a headland, on the E. ſide of the Channel of the Havannah. It is in the form of a triangle, fortified with baſtions, and 60 pieces of cannon, twenty-four-pounders. See HAVANNAH.

MOROC, or MAROC, a beautiful bird of Abyſſinia deſcribed by Mr Bruce, who thinks its name is derived from *mar*, *honey*, though he never heard it was further concerned in the honey than deſtroying bees. It ſeems to purſue theſe inſects from enmity or diverſion, as well as for food, leaving great numbers dead on the ground, beſides thoſe which it devours. Accordingly it is never found any where but in thoſe parts where the honey is very plentiful. The moroc reſembles the cuckoo in ſize and ſhape, but differs in other reſpects. Its mouth is very wide, the opening reaching almoſt to its eyes; the inſide of the mouth and throat yellow, the tongue ſharp-pointed, and capable of being drawn almoſt half its length out of the mouth beyond the point of its beak, and is very flexible. The head and neck are brown, without any mixture of other colours: there are likewiſe a number of very ſmall and ſcarcely viſible hairs at the root of the beak. The eyebrows are black; the beak pointed, and very little crooked; the pupil of the eye black, and ſurrounded with an iris of a dull and duſky red: The fore part of the neck is light yellow, darker on each ſide than in the middle, where it is partly white: the yellow on each ſide reaches near the ſhoulder, or round part of the wing; from this the whole breaſt and belly is of a dirty white to the under part of the tail; and from this the feathers begin to be tipt with white, as are all thoſe that cover the outſide of the wing. The wing has 8 feathers of the largeſt ſize and ſix of the 2d: the tail conſiſts of 12 feathers, the three longeſt being in the middle; they are placed cloſely together; and the tail is of an equal breadth from top to bottom, the feathers being alſo tipt with white. The thighs are covered with feathers of the ſame colour as thoſe of the belly, reaching more than half way down the legs, which are black, as well as the feet, and marked diſtinctly with ſcales. There are two toes before and behind, each of which has a ſharp and crooked claw. It makes a ſharp ſnapping noiſe when it catches the bees, evidently from cloſing its beak; but Mr Bruce never could diſcover that it had any ſong. This ſeems to be the creature mentioned by Dr Sparman under the name of Cuculus Indicator, as having the ſingular property of diſcovering the neſts of wild bees. See Cuculus, N° 6.

(I, 1.) MOROCCO, an empire of Africa, comprehending a conſiderable part of the ancient Mauritania, is bounded on the W. by the Atlantic Ocean; on the E. by the river Mulvia, which ſeparates it from Algiers; on the N. by the Mediterranean; and on the S. by mount Atlas, or rather by the river Sus, which divides it from the kingdom of Tafilet. Its greateſt length is from the NE. to the SW. amounting to above 590 miles; its breadth is not above 260 where broadeſt, and in the moſt narrow places is not above half that breadth.

(2.) Morocco, ancient history of. See Mauritania.

(3.) Morocco, chief cities of. This empire has three capitals: viz. Morocco, (N° II) Fez, and Mequinez; to which may be added Mogadore. See theſe articles.

(4.) Morocco, climate of. The climate of this empire is in general ſufficiently temperate, healthy, and not ſo hot as its ſituation might lead us to ſuppoſe The chain of mountains which form Atlas, on the E. ſide, defends it from the E. winds, that would ſcorch up the earth were they frequent. The ſummit of theſe mountains is always covered with ſnow; and their abundant deſcending ſtreams ſpread verdure through the neighbourhood, make the winter more cold, and temper the heats of ſummer. The ſea on the W. ſide, which extends along the coaſt from N. to S also refreſhes the land with regular breezes, that ſeldom vary according to their ſeaſons. At a diſtance from the ſea, within land, the heat is ſo great, that the rivulets become dry in ſummer; but as in hot countries dews are plentiful, the nights are always cool. The rains are tolerably regular in winter; and are even abundant, though the atmoſphere is not loaded with clouds as in northern latitudes. Thoſe rains which fall by intervals are favourable to the earth, and increaſe its fecundity. The winters in Morocco are not ſevere, nor is there an abſolute need of fire. In the coldeſt weather the thermometer ſeldom ſinks to more than 5 degrees above the freezing point. The longeſt days in Morocco are not more than 14 hours, and the ſhorteſt conſequently not leſs than ten.

(5.) Morocco, government of. Nothing can be conceived more unjuſt and deſpotic than the government of Morocco, and nothing more degenerate than the character of the people. The emperor is allowed to have not only an uncontrollable power over the lives and fortunes of his ſubjects, but in a great meaſure over their conſciences, ſuch as they are; as he is the only perſon who, as the ſucceſſor of the prophet, has a right to interpret the Koran; and appoints all the judges under him, of whom thoſe of Morocco and Fez are the chief, whoſe buſineſs it is to explain and diſpenſe all matters relating to their religion; and who, being his creatures and dependents, dare not ſteer otherwiſe than as he directs. Whenever therefore the laws are enacted by him, and proclaimed by his governors in all the provinces, as is commonly done, that none may plead ignorance, they are every where received with an implicit and religious ſubmiſſion. On the other hand, the ſubjects are bred up with a notion, that thoſe who die in the execution of his command are entitled to an immediate admittance into paradiſe, and thoſe who have the honour to die by his hand, to a ſtill greater degree of happineſs in it. After this we need not wonder at finding ſo much cruelty, oppreſſion, and tyranny on the one ſide, and ſo much ſubmiſſion, paſſiveneſs, and miſery on the other. This laſt, however, extends no farther than the Moors; for as to the mountaineers, the ſubjection and tribute they pay to thoſe tyrants was always involuntary, and altogether forced; and as for the negroes, their zeal and attachment is owing merely to the great ſway and power which they have gained in the government, on various accounts. They were firſt introduced, or rather their importation increaſed, by the policy of Muley Iſhmael, a late emperor, at a period when there was a great decreaſe of population in the empire, occaſioned in ſome degree by the enormous cruelties exerciſed by its former ſovereigns, who have been known not unfrequently, through a ſlight diſguſt, to give up a whole town or province to the ſword. In the character of Muley Iſhmael were found the moſt ſingular inconſiſtencies; for it is certain, that although a tyrant of the ſame claſs, yet in other reſpects, as if to repair the miſchief which he committed, he left nothing undone for the encouragement of population.—He introduced large colonies of negroes from Guinea; built towns for them, many of which are ſtill remaining; aſſigned them portions of land, and encouraged their increaſe by every poſſible means. He ſoon initiated them in the Mahometan faith; and had his plan been followed, the country by this time would have been populous, and probably flouriſhing. As the negroes are of a more lively, active, and enterpriſing diſpoſition than the Moors, they might ſoon have been taught the arts of agriculture; and their ſingular ingenuity might have been directed to other uſeful purpoſes. It is true, Muley Iſhmael, when he adopted this plan, had more objects in view than that of merely peopling his dominions. He ſaw plainly that his own ſubjects were of too capricious a diſpoſition to form ſoldiers calculated for his tyrannical purpoſes. They had uniformly manifeſted an inclination to change their ſovereigns, though more from the love of variety than to reform the government, or reſtrain the abuſes of tyranny. In ſhort, whatever revolutions took place in the country, conſiſted merely in a change of one tyrant for another. Muley Iſhmael had diſcernment enough to ſee, therefore, that by forming an army of ſlaves, whoſe ſole dependence ſhould reſt upon their maſter, he could eaſily train them in ſuch a manner as to act in the ſtricteſt conformity to his wiſhes. He ſoon learnt that the great object with the negroes was plenty of money and liberty of plunder; in theſe he liberally in-

indulged

dulged them, and the plan fully anſwered his expectations. Though, however, Muley Iſhmael had no great merit in introducing ſubjects for the purpoſes of tyranny, yet the good effects of this new colonization were very generally experienced. By intermarrying among themſelves, and intermixing among the Moors (for the Moors keep negro women as concubines, though they ſeldom marry them), a new race of people ſtarted up, who became as uſeful ſubjects as the native inhabitants, and brought the empire into a much more flouriſhing ſtate than it had ever been in ſince their great revolution. Sidi Mahomet, his grandſon and ſucceſſor, had different views, and was actuated by different motives. From his inordinate avarice, he ceaſed to act towards his black troops in the generous manner which had diſtinguiſhed his predeceſſor Muley Iſhmael; and they ſoon ſhowed themſelves diſcontented with his conduct. They frequently threatened to revolt, and ſupport thoſe of his ſons who were in oppoſition, and who promiſed them the moſt liberal rewards. They offered to place his eldeſt ſon Muley Ali, (who is ſince dead,) on the throne; but this prince, mindful of the duty which he owed his father and ſovereign, declined their offer. They next applied to Muley Yazid, the late emperor, who at firſt accepted of the aſſiſtance they tendered, but in a ſhort time relinquiſhed the plan. Sidi Mahomet, diſguſted with this conduct of the negroes, determined to curb their growing power, by diſbanding a conſiderable part of theſe troops, and baniſhing them to diſtant parts of the empire. This important mode of population has therefore been of late years neglected, while no better ſyſtem has been ſubſtituted in its room; for though the late emperor indulged in cruelty much leſs frequently than his predeceſſors, yet population has, perhaps, been more completely impeded by the general poverty which he has introduced into the country by his ſevere exactions, than if he had made a liberal uſe of the ſword or of the bowſtring. A moſt flagrant ſpecies of deſpotiſm, which renders the emperors ſtill more formidable to their ſubjects, is their making themſelves their ſole heirs, and, in virtue of that, ſeizing upon all their effects, and making only ſuch proviſion for their families as they think proper; and often, on ſome frivolous pretence, leaving them deſtitute of any, according to the liking or diſlike they bear to the deceaſed; ſo that, upon the whole, they are the only makers, judges, and interpreters, and in many inſtances likewiſe the executioners, of their own laws, which have no other limits than their own arbitrary will. To preſerve, however, ſome ſhow of juſtice, they allow their mufti a kind of ſuperiority in ſpirituals, and a ſort of liberty to the meaneſt ſubject to ſummon them before his tribunal. But the danger which ſuch an attempt would bring upon a plaintiff, perhaps no leſs than death and deſtruction, is of itſelf ſufficient to deter any man from it; eſpecially conſidering the little probability there is that the judges would run the riſk of declaring themſelves againſt a monarch whoſe creatures they are, and on whom their lives and fortunes ſo abſolutely depend. The titles which the emperors of Morocco aſſume, are thoſe of *Moſt glorious, mighty, and noble emperor of Afric, king of Fez and Morocco, Tapbilet, Sas, Darha, and all the Algarbe, and its territories in Afric; grand Sharif* (or, as others write it, *Xarif*, that is, *ſucceſſor*, or *vicegerent*) *of the great prophet Mohammed*, &c. The judges or magiſtrates that act immediately under the emperor are either ſpiritual or temporal, or rather eccleſiaſtical and military. The mufti and the kadis are judges of all religious and civil affairs; and the baſhaws, governors, alcaides, and other military officers, of thoſe that concern the ſtate or the army: all of them the moſt obſequious creatures and ſlaves of their prince, and no leſs the rapacious tyrants of his ſubjects, and from whom neither juſtice nor favour can be obtained but by mere dint of money and extortionate bribery, from the higheſt to the loweſt. Neither can it indeed be otherwiſe in ſuch an arbitrary government, where the higheſt poſts muſt not only be bought of the prince at a moſt extravagant price, and kept only by as exorbitant a tribute, which is yearly paid to him; but where no one is ſure to continue longer than he can bribe ſome of the courtiers to inſinuate to the monarch that he pays to the utmoſt of his power, and much beyond what was expected from him. Add to this, that thoſe baſhaws, governors, &c. are obliged to keep their agents and ſpies in conſtant pay at court, to prevent their being ſupplanted by higher bidders, ſlanderers, or other underminers. In ſhort, power and weakneſs, rank and meanneſs, opulence and indigence, are here equally dependent, equally uncertain. There are inſtances of the ſultan elevating at once a common ſoldier to the rank of a baſhaw, or making him a confidential friend; the following day he would perhaps impriſon him, or reduce him again to the ſtation of a private ſoldier. It is ſurpriſing that men under theſe circumſtances ſhould be ambitions of rank, or deſirous of riches and power. Yet ſuch is the diſpoſition of theſe people, that they have an unbounded thirſt for rank and power with all their uncertainties; and what is more extraordinary, when they have obtained a high ſtation, they ſeldom fail to afford their ſovereign a plea for ill treating them, by abuſing in ſome way or other their truſt,

(6. MOROCCO, HISTORY OF. This country continued under the dominion of the Romans upwards of 400 years. On the decline of that empire it fell under the Goths, who held it till about A. D. 600, when the Goths were driven out by the Vandals, the Vandals by the Greeks, and they in their turn by the Saracens, who conquered not only this empire, but nearly the whole continent of Africa; at leaſt their religion is to be found in all parts of it. The Saracen empire did not continue long united under one head, and many princes ſet up for themſelves in Africa as well as elſewhere, through whoſe diſſenſions the Almoravides were at length raiſed to the ſovereignty, as related under the article ALGIERS, § 3. Yuſef, or Joſeph, the 2d monarch of that line, built the city of Morocco, conquered the kingdom of Fez, and the Mooriſh dominions in Spain; all which were loſt by his grandſon Abu Hali, who was defeated and killed by the Spaniards. On this prince's death the crown paſſed to the Mohedians, or Almohedea, with whom it had not continued

above three generations, when Mohammed the ſon of Al-Manſur loſt the famous battle of Sierra Morena, in which 200,000 Moors were ſlain, and in conſequence of which Alphonſo X. retook a great number of the Mooriſh conqueſts immediately after. Mohammed died ſoon after this diſgrace, and left ſeveral ſons, between whom a civil war enſued, during which the viceroys of Fez, Tunis, and Tremeſen, eſtabliſhed themſelves as independent princes. At length one of the princes of the royal blood of Tremeſen having defeated the Almohedes, made himſelf maſter of the kingdoms of Morocco and Fez, and entailed them on his own family. In a ſhort time, however, this family was expelled by the Merini, the Merini by the Oatazes, and theſe by the Sharifs of Haſcen, who have kept the government ever ſince. This happened about 1516; and ſince that time, what we have under the name of hiſtory is little elſe than a catalogue of the enormous vices and exceſſes of the emperors. They have been in general a ſet of bloody tyrants, though they have had among them ſome able princes, particularly Muley Moluc, who defeated and killed Don Sebaſtian king of Portugal. See PORTUGAL. They have lived in almoſt a continual ſtate of warfare with the kings of Spain and other Chriſtian princes ever ſince; nor does the crown of Great Britain ſometimes diſdain, as in 1769, to purchaſe their friendſhip with preſents.

(7.) MOROCCO, INHABITANTS OF. See MOORS, § I, 1—22.

(8) MOROCCO, LAND FORCES OF. The land forces conſiſt principally of the black troops already mentioned, and ſome few white; amounting altogether to an army of about 36,000 men upon the eſtabliſhment, two thirds of which are cavalry. This eſtabliſhment, however, upon occaſion, admits of a conſiderable increaſe, as every man is ſuppoſed to be a ſoldier, and when called upon is obliged to act in that capacity. About 6000 of the ſtanding forces form the emperor's body guard, and are always kept near his perſon; the remainder are quartered in the different towns of the empire, and are under the charge of the baſhaws of the provinces They are all clothed by the emperor, and receive a trifling pay; but their chief dependence is on plunder, which they have frequent opportunities of acquiring. The ſoldiers have no diſtinction in dreſs from the other Moors; and are only marked by their accoutrements, which conſiſt of a ſabre, a very long muſket, a ſmall red leathern box to hold their balls, which is fixed in front by means of a belt, and a powder-horn ſlung over their ſhoulders. The army is under the direction of a commander in chief, four principal baſhaws, and alcaides who command diſtinct diviſions. The black troops are very hardy, capable of enduring great fatigue, hunger, thirſt, and every difficulty to which a military life is expoſed. They are well calculated for ſkirmiſhing parties, or for the purpoſe of haraſſing an enemy; but were they to undergo a regular attack, from their total want of diſcipline they would ſoon be routed. In all their manœuvres they have no notion whatever of order and regularity but have more the appearance of a rabble than of an army. Though theſe troops are ſuppoſed to be the ſtrongeſt ſupport of deſpotiſm, yet from their avarice and love of variety they frequently prove the moſt dangerous enemies to their monarchs; they are often known to excite ſedition and rebellion, and their inſolence has ſometimes proceeded to ſuch exceſſes as nearly to overturn the government. Their conduct is governed only by the paſſions. Thoſe who pay them beſt, and treat them with the greateſt attention, they will always be moſt ready to ſupport. This circumſtance, independent of every other, makes it the intereſt of the monarch to keep his ſubjects in as complete a ſtate of poverty as poſſible. The Moors are indeed remarkable for inſincerity in their attachments, and for their love of variety; a military force, in this kingdom eſpecially, is therefore the only means which a deſpotic monarch can employ for ſecuring himſelf in the throne. Ignorant of every principle of rational liberty, whatever conteſts this devoted people may engage in with their tyrants, are merely conteſts for the ſucceſſion; and the ſole object for which they ſpend their lives and their property, is to exchange one merciless deſpot for another.

(9.) MOROCCO, LAWS AND PUNISHMENTS IN. Here, as in all other Mohammedan countries, the alcoran and their comments upon it are their only written laws; and though in ſome inſtances their cadis and other civil magiſtrates are controlled by the arbitrary determinations of their princes, baſhaws, generals, and military officers, yet the latter have generally a very great deference and regard for their laws. Murder, theft, and adultery, are commonly puniſhed with death; and their puniſhments for other crimes, particularly thoſe againſt the ſtate, are very cruel; as impaling, dragging the priſoner through the ſtreets at a mule's heels till all his fleſh is torn off; throwing him from a high tower upon iron hooks; hanging him upon hooks till he die; crucifying him againſt a wall; and, indeed, the puniſhment and condemnation of criminals is in a manner arbitrary. The emperor, or his baſhaws, frequently turn executioners; ſhoot the offender, or cut him to pieces with their own hands, or command others to do it in their preſence.

(10.) MOROCCO, MINERALS OF. Unacquainted with the ſources of wealth of which their anceſtors were poſſeſſed, the Moors pretend there are gold and ſilver mines in the empire, which the emperors will not permit to be worked, leſt their ſubjects ſhould thus find means to ſhake off their yoke. There are iron mines in the ſouth, but the working of them has been found ſo expenſive, that the natives rather uſe imported iron, notwithſtanding the heavy duty it pays, by which its price is doubled. There are copper mines in the neighbourhood of Santa Cruz, which are not only ſufficient for the ſmall conſumption of the empire, where copper is little uſed, but are alſo an object of exportation, and would become much more ſo were the duties leſs immoderate.

(11.) MOROCCO, MONEY OF. The coins of this empire are a fluce, a blanquil, and ducat. The fluce is a ſmall copper coin, 20 whereof make a blanquil, of the value of two pence Sterling. The blanquil is of ſilver, and the ducat of gold, not unlike that of Hungary, and worth about 9s. Both theſe pieces are ſo liable to be clipped and filed by the Jews, that the Moors always carry ſcales to weigh them; and when found to be much diminiſhed in their weight, they are recoined by the Jews, who are maſters of the mint, by which they gain a conſiderable profit; as they do alſo by exchanging the light pieces for thoſe that are full weight. Merchants accounts are kept in ounces, ten of which make a ducat; but in payments to the government, it is ſaid they reckon 17½ for a ducat.

(12.) MOROCCO, MOUNTAINS, RIVERS, CAPES, AND BAYS OF. The chief mountains are that chain which goes under the name of *Mount Atlas*, and runs the whole length of Barbary from E. to W. paſſing through Morocco, and abutting upon that ocean which ſeparates the eaſtern from the weſtern continent, and is from this mountain called the *Atlantic Ocean*. (See ATLAS. N°6.) The principal rivers, beſides the Malva or Mulvia above mentioned, which riſes in the deſarts, and running from S. to N. divides Morocco from the kingdom of Algiers, are the Suz, Ommirabih, Rabbata, Larache, Darodt, Sebou, Gueron, and Tenſift, which riſe in Mount Atlas, and fall into the Atlantic Ocean. The chief capes are Cape Threeforks on the Mediterranean, Cape Spartel at the entrance of the Straits, Cape Cantin, Cape None, and Cape Bajadore, on the Atlantic Ocean. Of the bays the moſt conſiderable are, the bay of Tetuan in the Mediterranean, and the bay of Tangier in the ſtraits of Gibraltar.

(13.) MOROCCO, NAVY OF. The emperor's navy conſiſts of about 15 ſmall frigates, a few zebecks, and between 20 and 30 row-galleys. The whole is commanded by one admiral; but as theſe veſſels are principally uſed for the purpoſes of piracy, they ſeldom unite in a fleet. The number of the ſeamen in the ſervice are computed at 6000.

(14.) MOROCCO, QUADRUPEDS, BIRDS, &c. OF. The deſerts abound with lions, tigers, leopards, hyænas, and monſtrous ſerpents; but have neither elephants nor rhinoceroſes. The Barbary horſes were formerly very valuable, and thought equal to the Arabian. Though their breed is now ſaid to be decayed, yet ſome very fine ones are occaſionally imported into England. Camels and dromedaries; aſſes, mules, and *kumrahs*, (a moſt ſerviceable kind of mule, begot by an aſs upon a cow), are their beaſts of burden. Their cows are but ſmall, and barren of milk. Their ſheep yield but indifferent fleeces, but are very large, as are their goats. Bears, porcupines, foxes, apes, hares, rabbits, ferrets, weaſels, moles, cameleons, and all kinds of reptiles, are found here. Partridges and quails, eagles, hawks, and all kinds of wild-fowl, are frequent upon the coaſt.

(15.) MOROCCO, REFLECTIONS ON THE ABSURD CONDUCT OF THE EUROPEAN POWERS TOWARDS. It has often been thought ſurpriſing, that the Chriſtian powers ſhould ſuffer their marine to be inſulted by thoſe barbarians, who take the ſhips of all nations with whom they are not at peace, or rather who do not pay them a ſubſidy either in money or commodities. This forbearance has been accounted for by ſuppoſing, firſt, that a breach with them might provoke the Porte, who pretends to be their lord paramount; 2dly, that no Chriſtian power would be fond of ſeeing Algiers, and the reſt of that coaſt, in poſſeſſion of another; and, 3dly, that nothing could be got by a bombardment of any of their towns, as the inhabitants would inſtantly carry their effects to their deſerts and mountains, ſo that the benefit reſulting from the conqueſt muſt be tedious and uncertain. The firſt reaſon is ſo obviouſly abſurd as to require no anſwer. In regard to the ſecond and third ſuppoſitions, there is no neceſſity for taking poſſeſſion of theſe coaſts by any European power whatever. The object ought to be, not to conquer, but to render impotent, thoſe piratical ſtates; not to profit by plundering them, but to quaſh their piracies, and prevent them from being longer the nuiſancies and peſts of the Mediterranean; than which, according to the beſt informed travellers, there can be nothing more eaſy. Hardly any force of armament would be neceſſary for the purpoſe, would the Europeans merely leave them to their own reſources, and with-hold thoſe ſupplies with which they have been in uſe to furniſh them, contrary as well to good policy as to the intereſts of humanity. M. Lempriere, ſpeaking of the emperor of Morocco (1790) obſerves, that "nothing but groſs neglect or inexcuſable ignorance could induce the European princes in general to remain in a kind of tributary ſtate to a prince who had neither an army nor a fleet which deſerved the name, and a people whoſe diſpoſition is leſs ſuited to enterpriſe than perhaps any other. What had they to fear from him? His whole fleet conſiſted only of a few ſmall frigates and row-boats, ill managed and worſe manned, the whole of which might have been deſtroyed in one day by two or three well appointed European frigates. The entrances of thoſe ports where he laid up his ſhipping, if we except Tangier and Larache, are ſo continually choaking up with ſand, that in a ſhort time they will only admit fiſhing boats, or the very ſmalleſt craft. The towns are none of them regularly fortified except MOGODORE, and that hardly produces half a dozen of men who underſtands working the guns. And yet this contemptible power gives laws to all the coaſts of Portugal and Spain, and may be ſaid in ſome meaſure to command the entrance of the Mediterranean. It may be ſaid, he was too trifling a power to notice; if ſo, why laviſh immenſe preſents for the purpoſe of keeping him in temper? Thoſe who imagined they ſecured his friendſhip by theſe means, were much miſtaken; on the contrary, they only added fuel to that flame of avarice which was not to be extinguiſhed. If he was one day preſented with a frigate, he aſked for two the next; and the more his requeſts were indulged, the more his inordinate deſires were increaſed. It is well known to thoſe who have been converſant with the Moors, that to ſecure their friendſhip, you muſt firſt aſſert your own ſuperiority; and then, if you make them a trifling preſent, its value is trebled in their eſtimation. The ſame diſpoſition would have been found in the late emperor as in the common Moor. So far from courting an alliance, it would rather have been good policy at once to quarrel with him; the loſs of a few towns, and particularly Mogodore, to which he was much attached, from its being raiſed under his own auſpices, would ſoon have reduced him to good humour and ſubmiſſion." (*Tour*, p. 23.) Another intelligent traveller, M. Briſſon, obſerves, how extraordinary it is, that a prince ſo little to be dreaded as the emperor of Morocco, ſhould oblige the different powers of Europe to ſend ambaſſadors to him, and that he ſhould even dictate laws to them. There is not a ſingle ſovereign who dares to ſend a repreſentative to his court without making him at the ſame time conſiderable preſents; and what envoy would preſent himſelf without having his hands full? How happens it that the conſuls have not, by common conſent, repreſented to their reſpective ſovereigns, that the emperor of Morocco becomes every day more and more powerful by the ſupplies which they themſelves furniſh him. Twenty years ago this prince was abſolutely deſtitute of reſources. He had neither materials nor any place for caſting cannons; and he was equally in want of wood for building ſhips, of ropes, of nails, and even of workmen. It is France and other European powers that aſſiſt him, elſe the emperor of Morocco would be of little conſideration. His ſuperb batteries of braſs cannons, 24, 36, and 48 pounders, were furniſhed by Holland, Spain, England, and France. England has done more than other nations, by ſelling him thoſe beautiful cannons which were taken on the floating batteries. Mogodore is built in an advantageous ſituation, its batteries are well diſpoſed, and there are cannon at each embraſure; but they are there only in a manner for ſhow, as they have no carriages, and are ſupported only by brick work. There are no workmen in the country capable of mounting them on carriages, nor is there wood proper for making them. Did a few veſſels only wait for the ſailing of thoſe ſmall frigates which are almoſt all unfit for ſea except only two, nothing would be eaſier than to prevent them from returning, and to block up the ports of Mogodore, Rabat, and Salee. What would become of his commerce, and, above all, his marine, did the Chriſtian princes ceaſe to aſſiſt him, contrary to the intereſts of humanity? Would England and Spain unite only for a moment, Tangiers, his moſt beautiful port, would ſoon be ſo far ruined, that it could not afford ſhelter to his ſubjects, who, deſtitute of ſhips, would ſoon be obliged to give over their piracies. If the conſuls of different nations have never made theſe obſervations, and if they have never pointed out the means of curbing the inſolence of the emperor of Morocco, it is becauſe they are at the head of the commerce which theſe different powers carry on in that part of the world. I can aſſert, that theſe repreſentatives, inſtead of furniſhing their courts with the means of diminiſhing the power of the emperor, never ceaſe to add to his ſtrength, and to incite him to make new pretenſions. How much we aſſiſt theſe pirates, to hurt the advantageous trade which we might carry on! Their ſituation renders them very dangerous; but if we leave them only their ſituation, it would be impoſſible for them to profit much by it. Let impartial people pay a viſit to that country, let them ſpeak with the ſame ſincerity as I do; and they will no doubt be convinced, that the emperor of Morocco, of all the princes in the world, would be the leaſt able to do miſchief, did the ſovereigns of Europe ceaſe to furniſh him with ſuccours."

(16.) Morocco, revenues of From what has been ſaid of the oppreſſions of government (§ 5.), it may be concluded that the revenue ariſing to the emperor from bribery, extortion, and confiſcation, muſt be very conſiderable, though there is no poſſibility to make any other conjecture of its real amount than that it muſt be immenſe. Another conſiderable branch is the piratical trade, which brings the greater income into his treaſury, as he is not at any expenſe either for fitting of corſair veſſels out, or maintaining their men; and yet has the tenth of all the cargo and of all the captives; beſides which, he appropriates to himſelf all the reſt of them, by paying the captors 50 crowns per head, by which means he engroſſes all the ſlaves to his own ſervice and advantage This article is indeed a very conſiderable addition to his revenue, not only as he ſells their ranſoms at a very high rate, but likewiſe as he has the profit of all their labour, without allowing them any other maintenance than a little bread and oil, or any other aſſiſtance when ſick, than what medicines a Spaniſh convent, which he tolerates there, gives them gratis; and which, nevertheleſs, is forced to pay him an annual preſent for that toleration, beſides furniſhing the court with medicines, and the ſlaves with lodging and diet when they are not able to work. Another branch of his revenu econſiſts in the 10th part of all cattle, corn, fruits, honey, wax, hides, rice, and other products of the earth, which is exacted of the Arabs and Brebes, as well as of the natives; and theſe are levied, or rather farmed, by the baſhaws, governors, alcaides, &c. with all poſſible ſeverity. The Jews and Chriſtians likewiſe pay a capitation, the former of ſix crowns per head on all males from 15 years and upwards, beſides other arbitrary impoſts, fines, &c. That on the Chriſtians, for the liberty of trading in his dominions, riſes and falls according to their number, and the commerce they drive; but which, whatever it may bring yearly into his coffers, is yet detrimental to trade in general, ſeeing it diſcourages great numbers from ſettling there, notwithſtanding the artful invitations which the emperors and their miniſters make uſe of to invite them to it; for, beſides thoſe arbitrary exactions, there is ſtill another great hardſhip attending them, viz. that they cannot leave the country without forfeiting all their debts and effects to the crown. The duties on all imports and exports is another branch of his income, the amount of which, *communibus annis*, no author has yet given us any account of; only conſul Hatfield has computed the whole yearly revenue, including ordinaries and extraordinaries, to amount to 500 quintals of ſilver, each quintal, or 100 lb. weight, valued at ſomewhat above L 330 Sterling; ſo that the whole amounts to no more, according to him, than L.165,000; a ſmall revenue indeed for ſo large an empire, if the calculation may be depended upon. But St Olan, though he does not pretend ſo much as to gueſs at they early amount of it, in general repreſents it as ſo conſiderable, that Muley Iſhmael was reckoned to have amaſſed out of it a treaſure of gold and ſilver of about 50 effective millions; but whether of crowns or livres he does not tell us, nor how he came by his knowledge of it; becauſe that politic prince, even by his own confeſſion, not only cauſed all his riches to be buried in ſundry places under ground, his gold and ſilver to be melted into great lumps, and laid in the ſame privacy under ground, but likewiſe all thoſe whom he entruſted with the ſecret to be as privately murdered.

(17.) **MOROCCO, SOIL, CULTIVATION, PRODUCE, INSECTS, &c. OF.** The ſoil of Morocco is exceedingly fertile. It is moſt ſo in the inland provinces. On the W. coaſt it is in general light and ſtony, and is better adapted to the vine and olive than the culture of wheat. They annually burn, before the September rains, the ſtubble, which is left rather long; and this and the dung of cattle, every day turned to paſture, form the ſole manure the land receives. The ſoil requires but little labour, and the ploughing is ſo light, that the furrows are ſcarcely ſix inches deep; for which reaſon, in ſome provinces, wooden plough-ſhares are uſed for cheapneſs. In January the country is covered with verdure, and enamelled with flowers. Barley is cut in March, but the wheat harveſt is in June. All fruits are early in this climate; and in forward years the vintage is over in the beginning of September. Though in general there is more uniformity and leſs variation in hot than in northern climates, the firſt are nevertheleſs expoſed to the intemperance of weather: too heavy rains often impede the harveſt; and drought has ſtill greater inconveniences, for it inſures the propagation of locuſts. Theſe fatal inſects, which have ſo often laid deſolate hot countries, ſometimes commit the moſt dreadful ravages in the empire of Morocco. They come from the ſouth, ſpread themſelves over the lands, and increaſe to infinity when the rains of ſpring are not ſufficiently heavy to deſtroy the eggs they depoſit on the earth. The large locuſts, which are near three inches long, are not the moſt deſtructive: as they fly, they yield to the current of wind, which hurries them into the ſea, or into ſandy deſerts, where they periſh with hunger or fatigue. The young locuſts that cannot fly are the moſt ruinous; they creep over the country in ſuch multitudes, that they leave not a blade of graſs behind; and the noiſe of their feeding announces their approach at ſome diſtance. The devaſtations of locuſts increaſe the price of proviſions, and often occaſion famines: but the Moors find a kind of compenſation in making food of theſe inſects, prodigious quantities of which they bring to market, ſalted and dried like red herrings. They have an oily and rancid taſte, which habit only can render agreeable; they are eat here, however, with pleaſure. The empire of Morocco might ſupply itſelf with all neceſſaries, as well from the abundance and nature of its products, as from the few natural or artificial wants of the Moors occaſioned by climate or education. Its wealth conſiſts in the fruitfulneſs of its ſoil: its corn, fruits, flocks, flax, ſalt, gums, and wax, would not only ſupply its neceſſities, but yield a ſuperflux, which might become an object of immenſe trade and barter with other nations. Such numerous exports might return an inexhauſtible treaſure, were its government fixed and ſecure, and did ſubjects enjoy the fruits of their labour and their property in ſafety. The increaſe of corn in Morocco is often 60 to one, and 30 is held to be but an indifferent harveſt. The exportation of this corn is burdened by the laws, and by the prejudices of an intolerant religion, which permits them not to ſell their ſuperabundance to infidels. The property of land is beſides entirely precarious; ſo that each individual raiſes little more than ſufficient for his own wants. Hence, when the harveſt fails, from the ravages of locuſts or the intemperance of ſeaſons, theſe people are expoſed to miſery, ſuch as Europeans have no conception of, who enjoy a ſtable adminiſtration, which obviates and provides for all their wants. The Moors, naturally indolent, take little care of the culture of their fruits. Oranges, lemons, and thick-ſkinned fruits, the trees of which require little nurture, grow in the open fields; and there are very large plantations of them found, which they water to increaſe their product. Their vines, which yield excellent grapes, are planted as far as the 33d degree. But at Morocco, where they yield a large and delicious grape, they are ſupported by vine-poles, 5 or 6 feet above ground; and as they are obliged to be watered, the little wine made there is ſeldom preſerved. Figs are very good in ſome parts of the empire; but toward the ſouth they are ſcarcely ripe before they are full of worms, from the heats and night dews. Melons, for the ſame reaſon, are rarely eatable; they have but a moment of maturity, which paſſes ſo rapidly that it is with difficulty ſeized. Water melons are everywhere reared, and in ſome provinces are excellent. Apricots, apples, and pears, are in tolerable plenty in the neighbourhood of Fez and Mequinez, where water is leſs ſcarce, and the climate more temperate. But in the plain, which extends along the W. coaſt, theſe delicate fruits are very indifferent. The prickly pear, or Barbary fig, is plentifully found in Morocco; and is planted round vineyards and gardens, becauſe its thick and thorny leaves, which are wonderfully prolific, form impenetrable hedges. From theſe leaves a fruit is produced, covered with a thorny ſkin, that muſt be taken off with care. This fruit is mild, and full of very hard, ſmall kernels. The olive is everywhere found along the coaſt, but particularly to the ſouth. The trees are planted in rows, which form alleys the more agreeable, becauſe the trees are large, round, and high in proportion. They take care to water them, the better to preſerve the fruit. Oil of olives might here be plentifully extracted, were taxation fixed and moderate; but ſuch has been the variation it has undergone, that the culture of olives is ſo neglected as ſcarcely to produce oil ſufficient for internal conſumption. In 1768 and 1769 there were near 40,000 quintals of oil exported from Mogodore and Santa Cruz to Marſeilles, and ten years after it coſt 15d. per lb. Thus do vices of government expoſe nations to dearth and famine who live in the very boſom of abundance. From the province of Duquella to the S. of the empire, there are foreſts of the arga tree, which is thorny, irregular in its form, and produces a ſpecies of almond exceedingly hard, with a ſkin as corroſive as that of walnuts. Its fruit conſiſts of two almonds, rough and bitter, from which an oil is produced excellent for frying. To uſe this oil, it muſt be purified by fire, and ſet in a flame, which muſt be ſuffered to die away of itſelf; the moſt greaſy and corroſive particles are conſumed, and its acrid qualities are thus wholly deſtroyed. When the Moors gather theſe fruits, they bring their goats under the trees; and as the fruit falls, the animals carefully nibble off the ſkins. In the ſame province alſo is found the tree which produces gum ſandarac; alſo that which yields the tranſparent gum; but the latter is moſt productive, and affords the beſt gum the farther S. where the heat and night dews render the vegetable ſecretion more pure and copious. In the province of Suz, between the 25° and 30°, the inhabitants have an almond harveſt, which varies little, becauſe of the mildneſs of the climate; but the fruit is ſmall, for which reaſon they take little care of the trees, and they degenerate. The palm tree is common in the S. provinces of Morocco; but dates ripen there with difficulty, and few are good, except in the province of Suz, and toward Talfiet. On the coaſt of Sallee and Mamora there are foreſts of oak, which produce acorns near two inches long. They taſte like cheſnuts, and are eaten raw and roaſted. This fruit is called *Bellote*, and is ſent to Cadiz, where the Spaniſh ladies hold it in great eſtimation. Morocco alſo produces much wax; but ſince it has been ſubjected to the payment of additional duties, the country people have very much neglected their hives. Salt abounds, and in ſome places on the coaſt requires only the trouble of gathering. Independent of the ſalt-pits formed by the evaporation of the ſoft water, there are pits and lakes in the country whence great quantities are obtained. It is carried even as far as Tombut, whence it paſſes to the interior parts of Africa. The Moors cultivate their lands only in proportion to their wants; hence two-thirds of the empire lie waſte. Here the wild palm tree grows in abundance, from which thoſe people, when neceſſity renders them induſtrious, find great advantage. The ſhepherds, mule-drivers, camel-drivers, and travellers, gather the leaves, of which they make mats, fringes, baſkets, hats, large wallets to carry corn, twine, ropes, girths, and covers for their pack-ſaddles. This plant, with which alſo they heat their ovens, produces a mild and reſinous fruit, that ripens in September and October. It is in form like the raiſin, contains a kernel, and is aſtringent, and very proper to temper and counteract the effects of the watery and laxative fruits, of which theſe people in ſummer make an immoderate uſe.

(18.) Morocco, Trade of. The traffic of the empire by land is either with Arabia or Negroland: to Mecca they ſend caravans, conſiſting of ſeveral thouſand camels, horſes, and mules, twice every year, partly for traffic, and partly on a religious account; for numbers of pilgrims take that opportunity of paying their devotions to their great prophet. The goods they carry to the eaſt are woollen manufactures, leather, indigo, cochineal, and oſtrich feathers; and they bring back from thence ſilk, muſlins, and drugs. By their caravans to Negroland, they ſend ſalt, ſilk, and woollen manufactures, and bring back gold and ivory in return, but chiefly negroes. The caravans always go ſtrong enough to defend themſelves againſt the wild Arabs in the deſerts of Africa and Aſia; though, notwithſtanding all their vigilance, ſome of the ſtragglers and baggage often fall into their hands: they are alſo forced to load one half of their camels with water, to prevent their periſhing with drought and thirſt in thoſe inhoſpitable deſerts. And there is ſtill a more dangerous enemy, and that is the ſand itſelf: when the winds riſe, the caravan is perfectly blinded with duſt; and there have been inſtances, both in Africa and Aſia, of whole caravans, and even armies, having been buried alive in the ſands. There is no doubt alſo, but both men and cattle are ſometimes ſurpriſed by wild beaſts, as well as robbers, in thoſe vaſt deſerts: the hot winds alſo, blowing over a long tract of burning ſand, are equal almoſt to the heat of an oven, and deſtroy great numbers of merchants and pilgrims. If it was not for devotion, and in expectation of very great gains, no man would undertake a journey in theſe deſerts: great are the hazards and fatigues they muſt of neceſſity undergo; but thoſe that go to Mecca aſſure themſelves of paradiſe if they die, and have uncommon honours paid them at home if they ſurvive. People crowd to be taken into the eaſtern caravans; and the gold that is found in the ſouth makes them no leſs eager to undertake that journey. The natives have hardly any trading veſſels, but are ſeldom without ſome corſairs. Theſe, and European merchant ſhips, bring them whatever they want from abroad; as linen and woollen cloth, ſtuffs, iron, wrought and unwrought, arms, gunpowder, lead, and the like; for which they take in return, copper, wax, hides, Morocco leather, wool (which is very fine), gums, ſoap, dates, almonds, and other fruits. The duties paid by the Engliſh in the ports of Morocco are but half thoſe paid by other Europeans. No nation is fond of trading with theſe ſtates, not only on account of their capricious deſpotiſm, but the villany of individuals, both natives and Jews, many of whom take all opportunities of cheating, and when detected are ſeldom puniſhed.

(II.) Morocco, a city of the above kingdom, about 120 miles N. of Tarudant, 90 E. of Mogodore, and 350 S. of Tangier. It is ſituated in a beautiful valley, formed by a chain of mountains on the N. ſide, and thoſe of the Atlas, from which it is diſtant about 20 miles, on the S. and E. The country which immediately ſurrounds it is a fertile plain, beautifully diverſified with clumps of palm trees and ſhrubs, and watered by ſmall and numerous ſtreams which deſcend from Mount Atlas. The emperor's out-gardens, which are about 5 miles S. of the city, and are large plantations of olives walled in, add conſiderably to the beauty of the ſcene. Morocco, though one of the capitals of the empire, has nothing to recommend it but its great extent and the royal palace. It is encloſed by remarkably ſtrong walls, built of tabby, the circumference of which is about eight miles. On theſe walls there are no guns mounted; but they are flanked with ſquare towers, and ſurrounded ed by a wide and deep ditch. The city has a number of entrances, conſiſting of large double porches of tabby in the Gothic ſtyle, the gates of which are regularly ſhut every night at certain hours. As polygamy is allowed by the Mahometan religion, and is ſuppoſed in ſome degree to affect population, it would be difficult to form any computation near the truth with reſpect to the number of inhabitants which this city may contain. The moſques, which are the only public buildings, except the palace, worth noticing at Morocco, are more numerous than magnificent; one of them is ornamented with a very high and ſquare tower, built of cut ſtone, which is viſible at a conſiderable diſtance from the city. The ſtreets are very narrow, dirty, and irregular, and many of the houſes are uninhabited and falling to ruin. Thoſe which are decent and reſpectable in their appearance are built of tabby, and encloſed in gardens. That of the effendi or prime miniſter (according to Mr Lempriere) was among the beſt in Morocco. This houſe, which conſiſted of two ſtories, had elegant apartments both above and below, furniſhed in a ſtyle far ſuperior to any thing our author ever ſaw in that country. The court, into which the lower apartments opened, was very neatly paved with glazed blue and white tiling, and had in its centre a beautiful fountain. The upper apartments were connected together by a broad gallery, the balluſters of which were painted of different colours. The hot and cold baths were very large, and had every convenience which art could afford. Into the garden, which was laid out in a tolerably neat ſtyle, opened a room adjoining to the houſe, which had a broad arched entrance, but no door, beautifully ornamented with chequered tiling; and at both ends of the apartment the walls were entirely covered with looking-glaſs. The flooring of all the rooms was covered with beautiful carpeting, the walls ornamented with large and valuable looking-glaſſes, intermixed with watches and clocks in glaſs-caſes. The ceiling was carved wood-work, painted of different colours; and the whole was in a ſuperior ſtyle of Mooriſh grandeur. This and a few others are the only decent habitations in Morocco. The generality of them ſerve only to impreſs the traveller with the idea of a miſerable and deſerted city. The *Eclaiſſeria* is a particular part of the town where ſtuffs and other valuable articles are expoſed to ſale. It conſiſts of a number of ſmall ſhops, formed in the walls of the houſes, about a yard from the ground, of ſuch an height within as juſt to admit a man to ſit in one of them croſs-legged. The goods and drawers are ſo arranged round him, that when he ſerves his cuſtomers, who are ſtanding all the time out in the ſtreet, he can reach down any article he wants without being under the neceſſity of moving. Theſe ſhops, which are found in all the other towns of the empire, are ſufficient to afford a ſtriking example of the indolence of the Moors. There are three daily markets in different parts of the town of Morocco, where proviſions are ſold, and two weekly fairs for the diſpoſal of cattle. The city is ſupplied with water by wooden pipes connected with the neighbouring ſtreams, which run into reſervoirs placed in the ſuburbs, and ſome few in the centre of the town. The caſtle is a large and ruinous building, the outer walls of which encloſe a ſpace of ground about 3 miles in circumference. It has a moſque, on the top of which are three large balls, formed, as the Moors allege, of ſolid gold. The caſtle is almoſt a town of itſelf; it contains a number of inhabitants, who are in the ſervice of the emperor, and all under the direction of a particular alcaide, who is quite independent of the governor of the town. On the outſide of the caſtle, between the Mooriſh town and the Jewry, are ſeveral ſmall diſtinct pavilions, incloſed in gardens of orange trees, which are intended as occaſional places of reſidence for the emperor's ſons or brother, when in Morocco. As they are covered with coloured tiling, they have at a ſmall diſtance rather a neat appearance; but upon approaching or entering them, that appearance in a great meaſure ceaſes. The Jews, who are at this place pretty numerous, have a ſeparate town to themſelves, walled in, and under the charge of an alcaide, appointed by the emperor. It has two large gates, which are regularly ſhut every evening about 9 o'clock; after which time no perſon is permitted to enter or go out of the Jewry till they are opened again the following morning. The Jews have a market of their own; and when they enter the Mooriſh town, caſtle, or palace, they are always compelled to be barefooted. The palace is an ancient building, ſurrounded by a ſquare wall, the height of which nearly excludes from the view of the ſpectator the other buildings. Its principal gates are conſtructed with Gothic arches compoſed of cut ſtone, which conduct to ſeveral open and ſpacious courts; through theſe it is neceſſary to paſs to reach any of the buildings. Theſe open courts were uſed by the late emperor for tranſacting public buſineſs, and exerciſing his troops. The habitable part conſiſts of ſeveral irregular ſquare pavilions, built of tabby, and whitened over; ſome of which communicate with each other, others are diſtinct, and moſt of them receive their names from the different towns of the empire. The principal pavilion is named by the Moors the *doubar*, and is more properly the palace or ſeraglio than any of the others. It conſiſts of the emperor's place of reſidence and the Harem, forming altogether a building of conſiderable extent. The other pavilions are merely for the purpoſes of pleaſure or buſineſs, and are quite diſtinct from the douhar. The *Mogodore* pavilion is the grandeſt and moſt magnificent. It is lofty and ſquare; built of cut ſtone, handſomely ornamented with windows, and covered with varniſhed tiles of variours colours. Its elegance, contraſted with the ſimplicity and irregularity of the other buildings, produce a ſtriking effect. In the inſide, beſides ſeveral other apartments, we find in the pavilion a ſpacious room floored with blue and white chequered tiling, its ceiling covered with curiouſly carved and painted wood, and its ſtuccoed walls variouſly ornamented with looking-glaſſes and watches regularly diſpoſed in glaſs-caſes. The apartments of the emperor have in general a much ſmaller aſſortment of furniture than thoſe of the Moors in the ſuperior ranks. Handſome carpetting, a mattraſs on the ground covered with fine linen, a couch, and a couple of European bedſteads, are the principle articles they contain. The gardens within the walls of the palace, of which he has ſeveral, are very neat; they contain orange and olive trees, variouſly arranged and interſected with ſtreams, fountains, and reſervoirs. Thoſe on the outſide are large tracts of ground, irregularly planted with olives; having four ſquare walks, and ſurrounded by walls.

(III.) Morocco, or *Marroquin*, *n. ſ.* the ſkin of a goat, or ſome other animal reſembling it, dreſſed in ſumach or galls, and coloured of any colour at pleaſure; much uſed in bookbinding, &c. The name is derived from the kingdom of Morocco, whence it is ſaid the manner of preparing theſe ſkins was firſt borrowed. Morocco ſkins are brought from the Levant, Barbary, Spain, Flanders, and France; red, black, yellow, blue, &c. For the manner of preparing them, ſee Leather, § 6.

MOROCHTHUS, in natural hiſtory, an indurated clay, called by us *French chalk;* ſerving tailors and others to mark with. The ancients eſteemed it an aſtringent, preſcribing it in the cholic, hœmorrhagies, and other fluxes.

MOROKINNEE, one of the Sandwich Iſlands. Lon. 203. 33. E. Lat. 20. 30. N.

(1.) MORON, a town of France, in the department of Morbihan; 43 miles NE. of Vannes.

(2.) Moron, a town of Spain, in Andaluſia, ſeated in a pleaſant fertile plain, near a mine of precious ſtones; 30 miles SE. of Seville. Lon. 5. 20. W. Lat. 37. 0. N.

* MOROSE. *adj.* [*moroſus*, Latin.] Sour of temper; peeviſh; ſullen.—Without theſe precautions, the man grows ſullen and *moroſe*, the woman impertinent. *Spectator.*—Some have deſerved cenſure for a *moroſe* and affected taciturnity. *Watt's Impr. of the Mind.*

* MOROSELY. *adv.* [from *moroſe*.] Sourly; peeviſhly.—Too many are as *moroſely* poſitive in their age, as they were childiſhly ſo in their youth. *Gov. of the Tongue.*

* MOROSENESS. *n. ſ.* [from *moroſe*.] Sourneſs; peeviſhneſs.—Take care that no ſourneſs and *moroſeneſs* mingle with our ſerious frame of mind. *Nelſon.*—Abate ſome degree of pride and *moroſeneſs*. *Watts.*

* MOROSITY. *n. ſ.* [*moroſitas*, Latin; from *moroſe*.] Moroſeneſs; ſourneſs; peeviſhneſs.—

Why then be ſad,
But entertain no *moroſity*, brothers. *Shak.*
Some *moroſities*
We muſt expect. *Denham.*

—The levity of one, and the *moroſity* of another. *Clarendon.*

MOROTINNEE. See MOROKINNEE.

MOROTOI, one of the large Sandwich Iſlands, in the N. Pacific Ocean 7 miles WNW. of Mowee. It contains about 36,000 inhabitants. Lon. 202. 46. E. Lat. 21. 10. N.

MOROZZO, a town of France, in the dep. of the Stura, late Piedmonteſe, and ci-devant prov. of Coni; 8½ miles E. of Coni.

MORPETH, a handſome town of Northumberland, 14 miles from Newcaſtle, ſeated on the Cammas, with a bridge over the Wanſbeck. It is an ancient borough by preſcription, and had once an abbey and a caſtle, now in ruins, ſituated about a quarter of a mile S. of the town and river Wanſbeck, on an eminence which overlooks them both. The market place is conveniently ſituated near the centre of the town; and an elegant town-houſe was built by the Carliſle family in 1714, in which the quarter-ſeſſions is held for the county. It is built with hewn ſtone, with a piazza. The church being a quarter of a mile from the town, a tower containing a good ring of bells ſtands near the market-place. Near the bridge is the county gaol, a modern ſtructure. Morpeth has a free grammar ſchool, a chapel near the river, on the ſite of a chantry that was granted for the ſupport of the ſchool, which was part of the old ſtructure, and an hoſpital. In 1215, the townſmen burnt their town out of hatred to king John, that he might find no ſhelter in it. It has a good market on Saturday for corn, cattle, and proviſions; and another on Wedneſday, the greateſt in England, except Smithfield, for live cattle. It is a poſt town and thoroughfare, with many good inns, plenty of fiſh, and ſeveral mills.—The earl of Carliſle's ſteward holds a court twice a-year, one on Monday after Michaelmas, when four perſons are choſen by the free burgeſſes, who are about 107, and preſented to the ſteward, who names two of them to the bailiffs, who, with 7 aldermen, are its governors for the year following. Its fairs are on Wed. Thur. and Frid. before Whitſun. and Wed. before July 22. It ſends two members to parliament. It lies 28 miles N. of Durham, 91 S. of Edinburgh, and 287 N. by W. of London. Lon. 1. 28. W. Lat. 65. 15. N.

MORPHEUS, in the mythology, the god of ſleep, or, according to others one of the miniſters of Somnus. He cauſed ſleepineſs, and repreſented the forms of dreams. Ovid ſtyles him the kindeſt of the deities; and he is uſually deſcribed in a recumbent poſture, and crowned with poppies.

* MORPHEW. *n. ſ.* [*morphée*, French; *morphæa*, low Lat; *morfea*, Italian.] A ſcurf on the face.

MORRA, a town of France, in the dep. of Tanaro, and late diſtrict of Cheraſco, in the Piedmonteſe; 2½ miles E. of Cheraſco.

MORRERI. See Moreri.

MORRHINA Vasa. See Murrhina.

(1.) MORRIS, a county of New Jerſey, 25 m. long and 20 broad; containing 5 townſhips.

(2.) * Morris. } *n. ſ.* {that is *mooriſh*
(1.) * Morris-Dance. } or *moriſco-dance*.] 1.

A dance in which bells are gingled, or ſtaves or ſwords claſhed, which was learned by the Moors, and was probably a kind of Pyrrhick or military dance.—The queen ſtood in ſome doubt of a Spaniſh invaſion, though it proved but a *morris-dance* upon our waves. *Wotton.*—One in his catalogue of a feigned library, ſets down this title of a book, The *morris-dance* of hereticks. *Bacon.*—

The ſounds and ſeas, with all their finny drove,
Now to the moon in wavering *morrice* move.
Milton.

—I took delight in pieces that ſhewed a country village, *morrice-dancing*, and peaſants together by the ears. *Peacham.*—Four reapers danced a *morrice* to oaten pipes. *Spectator.* 2. *Nine mens* Morris. A kind of play with nine holes in the ground.—

The *nine mens morris* is fill'd up with mud.
Shak.

(2.) Morris Dance. See Moresque Dances.

* Morris-Dancer. *n. ſ.* [*morris* and *dance.*] One who dances *a la moreſca*, the morriſh dance. There went about the country a ſet of *morris-dancers*, compoſed of ten men, who danced a maid-marian, and a tabor and pipe. *Temple.*

MORRISINA, a town of New York, in W. Cheſter county; containing 15,580 citizens, and 536 ſlaves, in 1795.

MORRISON, a town of N. Carolina.

MORRO Fort. See Moro, N° 3.

MORRONE, a town of Naples in Lavora.

MORROPE, a town of Peru, in Sana.

* MORROW. *n. ſ.* [*morgen*, Saxon; *morghen*, Dutch. The original meaning of *morrow* ſeems to have been *morning*, which being often referred to on the preceding day, was underſtood in time to ſignify the whole day next following.] 1. The day after the preſent day.—

I would not buy
Their mercy at the price of one fair word;
To have 't with ſaying, good *morrow*. *Shak.*
Thou
Canſt pluck night from me, but not lend a *morrow*. *Shak.*

—The Lord did that thing on the *morrow*. *Exod.* ix. 6.—

Let them ſleep, let them ſleep on,
Till this ſtormy night be gone,
And the eternal *morrow* dawn. *Craſhaw.*
To *morrow* you will live, you always cry,
In what far country doth this *morrow* lie?
That 'tis ſo mighty long e'er it arrive:
Beyond the Indies does this *morrow* live?
'Tis ſo far-fetch'd this *morrow*, that I fear
'Twill be both very old, and very dear.
To-*morrow* will I live, the fool does ſay,
To day itſelf 's too late, the wiſe liv'd yeſterday. *Cowley.*

2. *To* Morrow. [This is an idiom of the ſame kind, ſuppoſing *morrow* to mean originally *morning*: as, *to night; to day.*] On the day after this current day.—

To morrow comes; 'tis noon; 'tis night;
This day like all the former flies;
Yet on he runs to ſeek delight
To morrow, till to night he dies. *Prior.*

3. *To morrow* is ſometimes, I think improperly uſed as a noun.—

Our yeſterday's *to morrow* now is gone,
And ſtill a new *to morrow* does come on.
We by *to morrows* draw out all our ſtore,
Till the exhauſted well can yield no more. *Cowley.*

—*To morrow* is the time when all is to be rectified. *Spectator.*

MORS. Death, one of the infernal deities, born of Night without a father. She was worſhipped by the ancients with great ſolemnity. She was not repreſented as an actually exiſting power, but as an imaginary being. Euripides introduces her in one of his tragedies on the ſtage. The moderns repreſent her as a ſkeleton armed with a ſcythe and a ſcymetar.

(1.) * MORSE. *n. ſ.* [*phoca.*] A ſea-horſe.—That which is commonly called a ſea-horſe is properly called a *morſe*, and makes not out that ſhape. *Brown.*—It ſeems to have been a tuſk of the *morſe* or waltron, called by ſome the ſea-horſe. *Woodward.*

(2.) Morse, in zoology. See Trichecus, N° 3.

* MORSEL. *n. ſ.* [*morſellus*, low Latin; from *morſus.*] 1. A piece fit for the mouth; a mouthful.—

Yet cam'ſt thou to a *morſel* of this feaſt,
Having fully din'd before. *Shak.*
And one his parent would full ſoon devour
For want of other prey, but knows that I
Should prove a bitter *morſel*, and his bane. *Milt.*

—Every *morſel* to a ſatisfied hunger, is only a new labour to a tired digeſtion. *South.*—

He boils the fleſh,
And lays the mangled *morſels* in a diſh. *Dryden.*
A wretch is pris'ner made,
Whoſe fleſh torn off by lumps, the rav'nous foe
In *morſels* cut, to make it farther go. *Tate.*

—A letter to the keeper of the lion requeſted that it may be the firſt *morſel* put into his mouth. *Addiſon.* 2. A piece; a meal.—

On theſe herbs, and fruits, and flow'rs,
Feed firſt; on each beaſt next, and fiſh and fowl,
No homely *morſels*! *Milton.*

—A dog croſſing a river with a *morſel* of fleſh in his mouth ſaw, as he thought, another dog under the water, upon the very ſame adventure. *L'Eſtrange.* 3. A ſmall quantity. Not proper.—Of the *morſels* of native and pure gold, he had ſeen ſome weighed many pounds. *Boyle.*

MORSELE, a town of France, in the dep. of the Lys, and late province of Auſtrian Flanders; 8 miles E. of Ypres.

MORSIGLIA, a town of France, in Corſica; 21 miles E. of Baſtia.

MORSONA, a town of Naples in Moliſe.

* MORSURE. *n. ſ.* [*morſure*, Fr. *morſura*, Lat.] The act of biting.

* MORT. *n. ſ.* [*morte*, Fr.] 1. A tune ſounded at the death of the game.—

To ſigh as 'twere
The *mort* o' th' deer. *Shak. Winter's Tale.*

2. [*Morgt*, Iſlandick.] A great quantity. Not in elegant uſe, but preſerved colloquially in many parts.

(1.) MORTAGNE, a town of France, in the dep. of the North, and ci-devant prov. of French Flanders, at the confluence of the Scarpe and the Scheld; 8 miles SE. of Tournay. Lon. 3. 30. E. Lat. 50. 29. N.

(2.–4.) Mortagne, the name of 3 other towns of France; viz. 1. In the dep. of Lower Charente; 12 miles SW. of Saintes: 2. In that of the Vendee, 27 miles SE. of Nantes; near which a bloody battle was fought in 1793, between the royaliſts and republicans, wherein the former were defeated and loſt 20,000 men: 3. In that of the Orne, and late prov. of Perche, containing about 6000 citizens, and ſeveral manufacturers; 19 miles E.

of Seez, and 70 W. of Paris. Lon. 0. 40. E. Lat. 48. 33. N.

MORTAIN, a town of France, in the dep. of the Channel, 17 miles E. of Avranches, and 30 SE. of Coutance. Lon. 0. 54. W. Lat. 48. 37. N.

(1.) * MORTAL. *adj.* [*mortalis*, Lat. *mortel*, Fr.] 1. Subject to death; doomed ſometime to die.—

I her frail ſon, amongſt my breth'ren *mortal*,
Muſt give my attendance too. *Shak. Henry* VIII.

—This *mortal* muſt put on immortality. 1 *Cor.* xv. 53.

Which of ye will be *mortal* to redeem
Man's mortal crime? *Milton.*
Inevitably thou ſhalt die;
From that day *mortal*. *Milton's Par. Loſt.*

2. Deadly; deſtructive; procuring death.—

Come all you ſpirits
That tend on *mortal* thoughts, unſex me here.
Shak. Macbeth.

—The *mortalleſt* poiſons practiſed by the Weſt Indians, have ſome mixture of the blood, fat, or fleſh of man. *Bacon.*

The fruit
Of that forbidden tree, whoſe *mortal* taſte
Brought death into the world, and all our woe.
Milton.

—Some circumſtances have been great diſcouragers of trade, and others are abſolutely *mortal* to it. *Temple.*—

Hope not, baſe man! unqueſtion'd hence to go,
For I am Palamon, thy *mortal* foe. *Dryden.*

3. Bringing death.—

Safe in the hand of one diſpoſing pow'r,
Or in the natal, or the *mortal* hour. *Pope.*

4. Inferring divine condemnation; not venial.—Though every ſin of itſelf be *mortal*, yet all are not equally *mortal*. *Perkins.* 5. Human; belonging to man.—I have learned by the perfected report, they have more in them than *mortal* knowledge. *Shak. Macbeth.*—

Macbeth
Shall live the leaſe of nature, pay his breath
To time and *mortal* cuſtom. *Shak. Macbeth.*
The voice of God
To *mortal* ear is dreadful. *Milt. Par. Loſt.*
Succeſs, the mark no *mortal* wit,
Or ſureſt hand can always hit. *Butler.*

—No one enjoyment but is liable to be loſt by ten thouſand accidents, out of all *mortal* power to prevent. *South's Serm.* 6. Extreme; violent. A low word.—The birds were in a *mortal* apprehenſion of the beetles. *L'Eſtrange.*—

The nymph grew pale and in a *mortal* fright,
Spent with the labour of ſo long a flight. *Dryd.*

(2.) * **Mortal.** *n. ſ.* 1. Man; human being.—Warn poor *mortals* left behind. *Tickel.* 2. This is often uſed in ludicrous language.—

I can behold no *mortal* now. *Prior.*

(1.) * MORTALITY. *n. ſ.* [from *mortal.*] 1. Subjection to death; ſtate of a being ſubject to death.—

When I ſaw her die,
I then did think on your *mortality*. *Carew.*

—We might guard againſt the ſprings of error, guilt, and ſorrow, which ſurround us in every ſtate of *mortality*. *Watt's Logic.* 2. Death.—

I beg *mortality*,
Rather than life preſerv'd with infamy. *Shak.*
Gladly would I meet
Mortality my ſentence. *Milt. Par. Loſt.*

3. Power of deſtruction.—

Mortality and mercy in Vienna
Live in thy tongue and heart. *Shak. M. for M.*

4. Frequency of death.—The riſe of keeping thoſe accounts firſt began in the year 1592, being a time of great *mortality*. *Graunt.* 5. Human nature.—It makes up the happineſs of their lives; *mortality* cannot bear it often. *Dryden.*—

Take theſe tears, *mortality's* relief. *Pope.*

(2.) **Mortality, bills of,** are accounts or regiſters ſpecifying the numbers born, married, and buried in any pariſh, town, or diſtrict. (See Bill, § 22.) In general they contain only theſe numbers; and, even when thus limited, are of great uſe, by ſhowing the degrees of healthineſs and prolificneſs, and the progreſs of population in the places where they are kept. It is therefore much to be wiſhed, that ſuch accounts had been always correctly kept in every kingdom, and regularly publiſhed at the end of every year. We ſhould then have had under our inſpection the comparative ſtrength of every kingdom, as far as it depends on the number of inhabitants, and its increaſe or decreaſe at different periods. But ſuch accounts are rendered more uſeful, when they include the ages of the dead, and the diſtempers of which they have died. In this caſe they convey ſome of the moſt important inſtructions, by furniſhing us with the means of aſcertaining the law which governs the waſte of human life, the values of annuities dependent on the continuance of any lives, or any ſurvivorſhips between them, and the favourableneſs or unfavourableneſs of different ſituations to the duration of human life. There are but few regiſters of this kind; nor has this ſubject, though ſo intereſting to mankind, ever engaged much attention till lately. The firſt bills containing the ages of the dead were thoſe for the town of Breſlaw and Sileſia. It is well known what uſe has been made of theſe by Dr Halley, and after him by De Moivre. A table of the probabilities of the duration of human life at every age, deduced from them by Dr Halley, has been publiſhed in the *Philoſ. Tranſ.* (ſee the Abridgement, vol. iii. p. 669.) and is the firſt table of this ſort that has been ever publiſhed. (See Annuities, *Sect.* II, *Table* III: and Man, N° I, § 13.) Since the publication of this table, ſimilar bills have been eſtabliſhed in a few towns of this kingdom; and particularly in London, in 1728, and at Northampton, in 1735.

(3.) **Mortality bills, improvements of.** Two improvements of theſe regiſters have been propoſed: the firſt is, that the ſexes of all that die in every period of life ſhould be ſpecified in them, under the denomination of *boys*, *married men*, *widowers*, and *bachelors*; and of *girls*, *married women*, *widows*, and *virgins*. The 2d is, that they ſhould ſpecify the numbers of both ſexes dying of every diſtemper in every month, and at every age. A 3d improvement is ſuggeſted under the article Longevity, § 6. Regiſters of mortality thus improved, when compared with records of the ſeaſons, and with the circumſtances that diſcriminate different ſituations, might contribute greatly to the increaſe of medical knowledge;

ledge; and they would afford the neceſſary data for determining the difference between the duration of human life among males and females; for ſuch a difference there certainly is much in favour of females, as will appear from the following facts. At Northampton, though more males are born than females, and nearly the ſame number die; yet the number of living females appeared, by an account taken in 1746, to be greater than the number of males, in the proportion of 2301 to 1770, or 39 to 30. (See **Marriage**, § 18.) At Berlin it appeared, from an accurate account which was taken of the inhabitants in 1747, that the number of female citizens exceeded the number of male citizens in the proportion of 459 to 391. And yet out of this ſmaller number of males, more had died for 20 years preceding 1751, in the proportion of 19 to 17. At Edinburgh, in 1793, the number of females was to the number of males as 44 to 37. (See *Sir J. Sinclair's Stat. Acc.* Vol. VI. p. 563.) But the females that died annually were to the males in no higher proportion than 3½ to 3. Whoever will take the trouble to examine the accounts in *Philoſ. Tranſ. Abr.* vol. vii. part iv. p. 46, &c. will find, that though in the towns there enumerated, the proportion of males and females born is no higher than 19 to 18, yet the proportion of boys and girls that die is 8 to 7; and that, in particular, the ſtill-born and chryſom males are to the ſtill-born and chryſom females as 3 to 2. In 39 pariſhes of the diſtrict of Vaud and Switzerland, the number of males that died during ten years before 1766 was 8170; of females 8167; of whom the numbers that died under one year of age were 1817 males and 1305 females; and under ten years of age, 3099 males and 2598 females. In the beginning of life, therefore, and before any emigrations can take place, the rate of mortality among males appears to be greater than among females. And this is rendered yet more certain by the following accounts. At Vevey, in the diſtrict of Vaud, there died in 20 years, ended at 1764, in the firſt month after birth, of males 135 to 89 females; and in the firſt year 225 to 162. It appears from a table given by Suſmilch, in his *Gottliche Ordnung*, vol. ii. p. 317, that in Berlin 203 males die in the firſt month, and but 168 females; and in the firſt year, 489 to 395; and alſo, from a table of Struycks, that in Holland 396 males die in the firſt year to 306 females. The authorities for theſe facts, and much more on this ſubject, may be found in the 4th eſſay in Dr Price's Treatiſe on Reverſionary Payments, and in the ſupplement. We ſhall here only add the following table, taken from a memoir of Mr Wargentin's, publiſhed in the collection of the Memoirs of the Royal Academy of Sciences at Stockholm, printed at Paris in 1772. In all Sweden for 9 years, ended in 1763, the proportion of females to males that died out of a given number living, was

Under the age of one year		-	1000 to	1099
From 1 to 3 years of age		-	1000	1022
3 5	—	-	—	1042
5 10	—	-	—	1074
10 15	—	-	—	1080
15 20	—	-	—	1097
20 25	—	-	—	1283
25 30	—	-	—	1161
30 35	—	-	—	993
35 40	—	-	—	1159
40 45	—	-	—	1115
45 50	—	-	—	1340
50 55	—	-	—	1339
55 60	—	-	—	1292
60 65	—	-	—	1115
65 70	—	-	—	1080
70 80	—	-	—	1022
80 90	—	-	—	1046
Above 90	—	-	—	1044

Regiſters of mortality on the improved plan above mentioned, were eſtabliſhed in 1772 at Cheſter, and alſo, in 1773, at Warrington in Lancaſhire; and they are ſo comprehenſive and correct, that there is reaſon to expect they will afford much inſtruction on the ſubject of human mortality, and the values of lives. But the country moſt diſtinguiſhed in this reſpect is Sweden; for in that kingdom exact accounts are taken of the births, marriages, and burials, and of the numbers of both ſexes that die at all ages in every town and diſtrict, and alſo, at the end of every period of five years, of the numbers living at every age: and at Stockholm a ſociety is eſtabliſhed, whoſe buſineſs it is to ſuperintend and regulate the enumerations, and to collect from the different parts of the kingdom the regiſters, in order to digeſt them into tables of obſervation. Theſe regulations were begun in Sweden in 1755; and tables, containing the reſult of them from 1755 to 1763, have been publiſhed in Mr Wargentin's memoir juſt referred to; and the moſt material parts of them may be found in an eſſay by Dr Price on the Difference between the Duration of Human Life in Towns and in Country Pariſhes, printed in the 65th vol. of the *Philoſ. Tranſ.* part ii.

(4.) **Mortality, method of forming registers of.** In the 4th eſſay in Dr Price's Treatiſe on Reverſionary Payments and Life Annuities, the following account is given of the principles on which tables of obſervation are formed from regiſters of mortality; and of the proper method of forming them, ſo as to render them juſt repreſentations of the number of inhabitants, and the probabilities of the duration of human life in a town or country. In every place which juſt ſupports itſelf in the number of its inhabitants, without any recruits from other places; or where, for a courſe of years, there has been no increaſe or decreaſe; the number of perſons dying every year at any particular age, and above it, muſt be equal to the number of the living at that age. The number, for example, dying every year at all ages from the beginning to the utmoſt extremity of life, muſt, in ſuch a ſituation, be juſt equal to the whole number born every year. And for the ſame reaſon, the number dying every year at one year of age and upwards, at two years of age and upwards, and ſo on, muſt be equal to the numbers that attain to thoſe ages every year; or, to the numbers of the living at thoſe ages. It is obvious, that unleſs this happens, the number of inhabitants cannot remain the ſame. If the former number is greater than the latter, the inhabitants muſt decreaſe; if leſs, they muſt increaſe. From this obſervation it follows, that in town or country where there is no increaſe or decreaſe, bills of mortality which give the ages at which all die, will ſhow the exact number of inhabitants, and alſo the exact law according to which human life waſtes in that town or country, To find the number of inhabitants, the mean numbers dying annually at every particular age and upwards muſt be taken as given by the bills, and placed under one another in the order of the ſecond column of the following tables. Theſe numbers will, it has appeared, be the numbers of the living at 1, 2, 3, &c. years of age; and conſequently the ſum diminiſhed by half the number born annually will be the whole number of inhabitants. This ſubtraction is neceſſary for the following reaſon: In a table formed in the manner here directed, it is ſuppoſed that the numbers in the 2d column are all living together at the beginning of every year. Thus the number in the 2d column oppoſite to 0 in the firſt column, the table ſuppoſes to be all juſt born together on the firſt day of the year. The number, likewiſe, oppoſite to 1, it ſuppoſes to attain to one year of age juſt at the ſame time that the former number is born. And the like is true of every number in the 2d column. During the courſe of the year, as many will die at all ages as were born at the beginning of the year; and conſequently, there will be an exceſs of the number alive at the beginning of the year above the number alive at the end of the year, equal to the whole number of the annual births; and the true number conſtantly alive together is the arithmetical mean between theſe two numbers; or agreeably to the rule here given, the ſum of the numbers in the 2d column of the table leſſened by half the number of annual births. In ſuch a ſeries of numbers, the exceſs of each number above that which immediately follows it will be the number dying every year out of the particular number alive at the beginning of the year; and theſe exceſſes ſet down regularly as in the 3d column of the table to which we have referred, will ſhow the different rates at which human life waſtes through all its different periods, and the different probabilities of life at all particular ages. What has been now ſaid goes on the ſuppoſition, that the place whoſe bills of mortality are given, ſupports itſelf, by procreation only, in the number of its inhabitants. In towns this very ſeldom happens on account of the luxury and debauchery which generally prevail in them. They are, therefore, commonly kept up by a conſtant acceſſion of ſtrangers, who remove to them from country pariſhes and villages. In theſe circumſtances, in order to find the true number of inhabitants, and probabilities of life, from bills of mortality containing an account of the ages at which all die, it is neceſſary that the proportion of the annual births to the annual ſettlers ſhould be known, and alſo the period of life at which the latter remove. Both theſe particulars may be diſcovered by the following method: If for a courſe of years there has been no ſenſible increaſe or decreaſe in a place, the number of annual ſettlers will be equal to the exceſs of the annual burials above the annual births. If there is an increaſe, it will be greater than this exceſs. If there is a decreaſe, it will be leſs. The period of life at which theſe ſettlers remove, will appear in the bills by an increaſe in the number of deaths at that period and beyond it. Thus in the London bills the number of deaths between 20 and 30 is generally above double, and between 30 and 40 near triple, the number of deaths between 10 and 20; and the true account of this is, that from the age of 18 or 20 to 35 or 50, there is an afflux of people every year to London from the country, which occaſions a great increaſe in the number of inhabitants at theſe ages; and conſequently raiſes the deaths for all ages above 20, conſiderably above their due proportion, when compared with the number of deaths before 20. This is obſervable in all the bills of mortality for towns with which we are acquainted, not excepting even the Breſlaw bills. Dr Halley takes notice, that theſe bills gave the number of deaths between 10 and 20 too ſmall. This he conſidered as an irregularity in them owing to chance; and, therefore, in forming his table of obſervations, he took the liberty ſo far to correct it, as to render the proportion of thoſe who die, to the living in this diviſion of life, nearly the ſame with the proportion which, he ſays, he had been informed, die annually of the young lads in Chriſt-church Hoſpital. But the truth is, that this irregularity in the bills was derived from the cauſe we have juſt aſſigned. During the five years for which the Breſlaw bills are given by Dr Halley, the births did indeed a little exceed the burials; but it appears that this was the effect of ſome peculiar cauſes that happened to operate juſt at that time: for during a complete century from 1633 to 1734, the annual medium of births was 1089, and of burials 1256. This town, therefore, muſt have been all along kept up by a number of yearly recruits from other places, equal to about a 7th part of the yearly births. It appears from the account in the *Philoſ. Tranſ. Abr.*, vol. vii. N° 380, p. 46, &c. that from 1717 to 1725, the annual medium of births at Breſlaw was 1252, of burials 1507; and that the greateſt part of the births died under 10 years of age. From a table in Suſmilch's works, vol. i. p. 38. it appears that in reality the greater part of all that die in this town are children under five years of age. What has been now obſerved concerning the period of life at which people remove from the country to ſettle in towns, would appear ſufficiently probable were there no ſuch evidence for it as has been mentioned; for it might be well reckoned that theſe people in general muſt be ſingle perſons in the beginning of mature life, who, not having yet obtained ſettlements in the places where they were born, migrate to towns in queſt of employments. It is proper next to endeavour to explain diſtinctly the effect which theſe acceſſions to towns muſt have on tables of obſervation formed from their bills of mortality. This is a ſubject proper to be inſiſted on, becauſe miſtakes have been committed about it; and becauſe alſo the diſcuſſion of it is neceſſary, to ſhow how near to truth the values of lives come as deduced from ſuch tables. The following general rule may be given on this ſubject. *If a place has for a courſe of years been maintained in a ſtate nearly ſtationary, as to number of inha-*

bitants, by recruits coming in every year, to prevent the decreaſe that would ariſe from the exceſs of burials above the births, a table formed on the principle, "that the number dying annually, after every particular age, is equal to the number living at that age," will give the number of inhabitants, and the probabilities of life, too great, for all ages preceding that at which the recruits ceaſe; and after this it will give them right. If the acceſſions are ſo great as to cauſe an increaſe in the place, ſuch a table will give the number of inhabitants and the probabilities of life too little after the age at which the acceſſions ceaſe; and too great if there is a decreaſe. Before that age it will in both caſes give them too great; but moſt conſiderably ſo in the former caſe, or when there is an increaſe. Agreeably to theſe obſervations, if a place increaſes, not in conſequence of acceſſions from other places, but of a conſtant exceſs of the births above the deaths, a table conſtructed on the principle that has been mentioned will give the probabilities of life too low through the whole extent of life; becauſe, in ſuch circumſtances, the number of deaths in the firſt ſtages of life muſt be too great, in compariſon of the number of deaths in the later ſtages; and more or leſs ſo, as the increaſe is more or leſs rapid. The contrary in all reſpects takes place where there is a decreaſe ariſing from the exceſs of the deaths above the births. For example: Let us ſuppoſe that 244 of thoſe born in a town attain annually to 20 years of age, and that 250 more, all likewiſe 20 years of age, come into it annually from other places, in conſequence of which it has for a courſe of years been juſt maintained in the number of its inhabitants, without any ſenſible increaſe or decreaſe: in theſe circumſtances, the number of the living in the town of the age of 20 will be always 244 natives and 250 ſettlers, or 494 in all; and ſince theſe are ſuppoſed all to die in the town, and no more recruits are ſuppoſed to come in, 494 will be likewiſe the number dying annually at 20 and upwards. In the ſame manner it will appear, on theſe ſuppoſitions, that the number of the living, at every age ſubſequent to 20, will be equal to the number dying annually at that age and above it; and conſequently, that the number of inhabitants and the decrements of life, for every ſuch age, will be given exactly by the table. But for all ages before 20, they will be given much too great. For let 280 of all born in the town reach 10; in this caſe 280 will be the true number of the living in the town at the age of 10: and the recruits not coming in till 20, the number given by the bills as dying between 10 and 20 will be the true number dying annually of the living in this diviſion of life. Let this number be 36; and it will follow that the table ought to make the numbers of the living at the ages between 10 and 20, a ſeries of decreaſing means between 280 and (280 diminiſhed by 36, or) 244. But in forming the table on the principle juſt mentioned, 250 (the number above 20 dying annually in the town who were not born in it) will be added to each number in this ſeries; and therefore the table will give the numbers of the living, and the probabilities of life in this diviſion of life, almoſt twice as great as they really are. This obſervation, it is manifeſt, may be applied to all the ages under 20. Such a table will give the number of inhabitants and the probabilities of life equally wrong before 20, whether the recruits all come in at 20, agreeably to the ſuppoſition juſt made, or only begin then to come in. In this laſt caſe, the table will give the number of inhabitants and probabilities of life too great throughout the whole extent of life, if the recruits come in at all ages above 20. But if they ceaſe at any particular age, it will give them right only from that age; and before, it will err all along on the ſide of exceſs; but leſs conſiderably between 20 and that age than before 20. For example: If, of the 250 ſuppoſed to come in at 20, only 150 then come in, and the reſt at 30: the number of the living will be given 100 too high at every age between 20 and 30; but, as juſt ſhown, they will be given 250 too high at every age before 20. In general, therefore, the number of the living at any particular age muſt be given by the ſuppoſed table as many too great as there are annual ſettlers after that age; and if theſe ſettlers come in at all ages indiſcriminately, during any certain interval of life, the number of inhabitants and the probabilities of life will be continually growing leſs and leſs wrong the nearer any age is to the end of that interval. Theſe obſervations prove, that tables of obſervation formed in the common way, from bills of mortality for places where there is an exceſs of the burials above the births, muſt be erroneous for a great part of the duration of life, in proportion to the degree of that exceſs. They ſhow likewiſe at what parts of life the errors in ſuch tables are moſt conſiderable, and how they may be in a great meaſure corrected. All this ſhall be exemplified in the particular caſe of London. The number of deaths between the ages of 10 and 20 is always ſo ſmall in the London bills, that it ſeems certain few recruits come to London under 20, or at leaſt not ſo many as before this age are ſent out for education to ſchools and univerſities. After 20, great numbers come in till 30, and ſome perhaps till 40 or 50; but at every age after 50, it is probable that more retire from London than come to it. The London tables of obſervation, therefore, being formed on the principle already mentioned, cannot give the probabilities of life right till 40. Between 30 and 40 they muſt be a little too high; but more ſo between 20 and 30, and moſt of all ſo before 20. It follows alſo, that theſe tables muſt give the number of inhabitants in London much too great. The firſt of the following tables is formed in the manner here explained, from the London bills for 10 years, from 1759 to 1768, and adapted to 1000 born as a radix. The ſum of the numbers in the 2d column, diminiſhed by half the number born, is 25,757. According to this table, then, for every 1000 deaths in London there are 25¾ as many inhabitants; or, in other words, the expectation of a child juſt born is 25¾; and the inhabitants are to the annual burials as 25¾ to 1. But it has appeared, that the numbers in the 2d column, being given on the ſuppoſition that all thoſe who die in London were born there, muſt be too great; and we have hence a demonſtration, that the probabilities of life are given in the common tables of London obſervations too high for at leaſt the firſt 30 years of life; and alſo, that the number of inhabitants in London muſt be leſs than 25¼ multiplied by the annual burials. The common tables, therefore, of London obſervations undoubtedly need correction, as Mr Simpſon ſuggeſted, and in ſome meaſure performed, though too imperfectly, and without going upon any fixed principles, or ſhowing particularly how tables of obſervation ought to be formed, and how far in different circumſtances, and at different ages, they are to be depended on. The way of doing this, and in general the right method of forming genuine tables of obſervation for towns, may be learned from the following rule: "From the ſum of all that die annually, after any given age, ſubtract the number of annual ſettlers after that age; and the remainder will be the number of the living at the given time." If, therefore, the number of annual ſettlers in a town at every age could be aſcertained, a perfect table of obſervations might be formed for that town from bills of mortality, containing an account of the ages at which all die in it. But no more can be learned, in this inſtance, from any bills, than the whole number of annual ſettlers, and the general diviſion of life in which they enter. This, however, may be ſufficient to enable us to form tables that ſhall be tolerably exact. For inſtance: Suppoſe the annual deaths in a town which has not increaſed or decreaſed, to have been for many years in the proportion of 4 to 3 to the annual births; it will hence follow, that ¼ of the perſons who die in ſuch a town are ſettlers, or emigrants from other places, and not natives; and the ſudden increaſe in the deaths after 20 will alſo ſhow, agreeably to what was before obſerved, that they enter after this age. In forming, therefore, a table for ſuch a town, a quarter of all that die at all ages throughout the whole extent of life muſt be deducted from the ſum of all that die after every given age before 20; and the remainder will be the true number living at that given age. And if at 20, and every age above it, this deduction is omitted, or the number of the living at every ſuch age is taken the ſame with the ſum of all that die after it, the reſult will be (ſuppoſing moſt of the ſettlers to come in before 30, and all before 40) a table exact till 20; too high between 20 and 30; but nearly right for ſome years before 40; and after 40 exact again. Such a table, it is evident, will be the ſame with the table laſt deſcribed at all ages above 20, and different from it only under 20. It is evident alſo, that on account of its giving the probabilities of life too great for ſome years after 20, the number of inhabitants deduced from it may be depended on as ſomewhat greater than the truth; and more or leſs ſo, as the annual recruits enter in general later or ſooner after 20. Let us now conſider what the reſult of theſe remarks will be, when applied particularly to the London bills. It muſt be here firſt obſerved, that at leaſt one quarter of all that die in London are ſupplies or ſettlers from the country, and not natives. The medium of annual burials for 10 years, from 1759 to 1768, was 22,956; of births 15,710. The exceſs is 7246, or near a third of the burials. The ſame exceſs during 10 years before 1750 was 10,500, or near half the burials. London was then decreaſing. For the laſt 12 or 15 years it has been increaſing. This exceſs, therefore, agreeably to the foregoing obſervations, was then greater than the number of annual ſettlers, and it is now leſs. It is, however, here ſuppoſed, that the number of annual ſettlers is now no more than a quarter of the annual burials, in order to allow for more omiſſions in the births than the burials; and alſo, in order to be more ſure of obtaining reſults that ſhall not exceed the truth. Of every 1000, then, who die in London, only 750 are natives, and 250 are recruits, who come to it after 18 or 20 years of age; and, conſequently, to obtain from the bills a more correct table than the firſt of the following tables, 250 muſt be ſubtracted from every one of the numbers in the 2d column till 20; and the numbers in the 3d column muſt be kept the ſame, the bills always giving theſe right. After 20, the table is to be continued unaltered; and the reſult will be, a table which will give the numbers of the living at all ages in London much nearer the truth, but ſtill ſomewhat too high. Such is the 2d of the following tables. The ſum of all the numbers in the 2d column of this table, diminiſhed by 500, is 20,750. For every 1000 deaths, therefore, in London, there are, according to this table, 20,750 living perſons in it; or for every ſingle death, 20¾ inhabitants. It was before ſhown, that the number of inhabitants in London could not be ſo great as 25 times ¼ the deaths. It now appears (ſince the numbers in the 2d column of this table are too high), that the number of inhabitants in London cannot be ſo great as even 20 times ¾ the deaths. And this is a concluſion which every one who will beſtow due attention on what has been ſaid, will find himſelf forced to receive. It will not be amiſs, however, to confirm it by the following fact, the knowledge of which is derived from the particular inquiry and information of Mr Harris, the late ingenious maſter of the royal mathematical ſchool in Chriſt-church hoſpital. The average of lads in this ſchool has, for 30 years paſt, been 831. They are admitted at all ages between 7 and 11; and few ſtay beyond 16: they are therefore, in general, lads between the ages of 8 and 16. They have better accommodations than children commonly have; and about 300 of them have the advantage of being educated in the country. In ſuch circumſtances, it may be well reckoned, that the proportion of children dying annually muſt be leſs than the general proportion of children dying annually at the ſame ages in London. The fact is, that for the laſt 30 years 12⅘ have died annually, or one in 70⅔. According to Table II. one in 73 dies between 10 and 20, and one in 70 between 8 and 16. That table, therefore, probably gives the decrements of life in London, at theſe ages, too little, and the numbers of the living too great; and if this is true of theſe ages, it muſt be true of all other ages under 20; and it follows demonſtrably, in conformity to what was before ſhown, that more people ſettle in London after 20 than the 4th above ſuppoſed; and that from 20 to at leaſt 30 or 35, the numbers of the living are given too great, in proportion to the decrements of life. In this table, the numbers in the 2d column are doubled at 20, agreeably to what really happens in London; and the ſum of the numbers in this column, diminiſhed by half the whole number of deaths, gives the expectation of life, not of a child juſt born, as in other tables, but of all the inhabitants of London at the time they enter it, whether that be at birth or at 20 years of age. The *expectations*, therefore, and the *values* of London lives under 20, cannot be calculated from this table. But it may be very eaſily fitted for this purpoſe, by finding the number of births which, according to the given decrements of life, will leave 494 alive at 20; and then adapting the intermediate numbers in ſuch a manner to this radix, as to preſerve all along the number of the living in the ſame proportion to the numbers of the dead. This is done in the 3d of the following tables, and this table may be recommended as better adapted to the preſent ſtate of London than any other table. The values of lives, however, deduced from it, are in general nearly the ſame with thoſe deduced by Mr Simpſon from the London bills as they ſtood 50 years ago; (See ANNUITIES, *Sect.* II. *Table* IV.) The main difference is, that after 52, and in old age, this table gives them ſomewhat lower than Mr Simpſon's table. The difference between the rate of human mortality in great towns and in country pariſhes and villages, may be found from various tables in Sir J. Sinclair's Statiſtical Account of Scotland; as well as from the Rev. Dr Wilkie's table and calculations for the county of Fife, inſerted under the articles ANNUITIES, *Sect.* III.

(5.) MORTALITY.—TABLE I.

Showing the probabilties of life in London, on the ſuppoſition that all who die in London were born there. Formed from the bills for 10 years, from 1759 to 1768.

Ages.	Perſons living.	Decr. of Life.	Ages.	Perſons living.	Decr. of Life.	Ages.	Perſons living.	Decr. of Life.
0	1000	240	31	404	9	62	132	7
1	760	99	32	395	9	63	125	7
2	661	42	33	386	9	64	118	7
3	619	29	34	377	9	65	111	7
4	590	21	35	368	9	66	104	7
5	569	11	36	359	9	67	97	7
6	558	10	37	350	9	68	90	7
7	548	7	38	341	9	69	83	7
8	541	6	39	332	10	70	76	6
9	535	5	40	322	10	71	70	6
10	530	4	41	312	10	72	64	6
11	526	4	42	302	10	73	58	5
12	522	4	43	292	10	74	53	5
13	518	3	44	282	10	75	48	5
14	515	3	45	272	10	76	43	5
15	512	3	46	262	10	77	38	5
16	509	3	47	252	10	78	33	4
17	506	3	48	242	9	79	29	4
18	503	4	49	233	9	80	25	3
19	499	5	50	224	9	81	22	3
20	494	7	51	215	9	82	19	3
21	487	8	52	206	8	83	16	3
22	479	8	53	198	8	84	13	2
23	471	8	54	190	7	85	11	2
24	463	8	55	183	7	86	9	2
25	455	8	56	176	7	87	7	2
26	447	8	57	169	7	88	5	1
27	439	8	58	162	7	89	4	1
28	431	9	59	155	8	90	3	1
29	422	9	60	147	8			
30	413	9	61	139	7			

(6.) MORTALITY.—TABLE II.

Showing the true probability of life in London till the age of 19.

Ages.	Perſons living.	Decr. of Life.	Ages.	Perſons living.	Decr. of Life.
0	750	240	12	272	4
1	510	99	13	268	3
2	411	42	14	265	3
3	369	29	15	262	3
4	340	21	16	259	3
5	319	11	17	256	4
6	308	10	18	253	
7	298	7	19	249	
8	291	6	20	494	
9	285	5	21	487	
10	280	4	&c.	&c.	
11	276	4			

The numbers in the ſecond column to be continued as in the laſt table.

(7.) MORTALITY.—TABLE III.

Showing the true probabilities of life in London for all ages. Formed from the bills for 10 years, from 1759 to 1768.

Ages.	Perſons living.	Decr. of Life.	Ages.	Perſons living.	Decr. of Life.	Ages.	Perſons living.	Decr. of Life.
0	1518	486	31	404	9	62	132	7
1	1032	200	32	395	9	63	125	7
2	832	85	33	386	9	64	118	7
3	747	59	34	377	9	65	111	7
4	688	42	35	368	9	66	104	7
5	646	23	36	359	9	67	97	7
6	623	20	37	350	9	68	90	7
7	603	14	38	341	9	69	83	7
8	589	12	39	332	10	70	76	6
9	577	10	40	322	10	71	70	6
10	567	9	41	312	10	72	64	6
11	558	9	42	303	10	73	58	5
12	549	8	43	292	10	74	53	5
13	541	7	44	282	10	75	48	5
14	534	6	45	272	10	76	43	5
15	528	6	46	262	10	77	38	5
16	522	7	47	252	10	78	33	4
17	515	7	48	242	9	79	29	4
18	508	7	49	233	9	80	25	3
19	501	7	50	224	9	81	22	3
20	494	7	51	215	9	82	19	3
21	487	8	52	206	8	83	16	3
22	479	8	53	198	8	84	13	2
23	471	8	54	190	7	85	11	2
24	463	8	55	183	7	86	9	2
25	455	8	56	176	7	87	7	2
26	447	8	57	169	7	88	5	1
27	439	8	58	162	7	89	4	1
28	431	9	59	155	8	90	3	1
29	422	9	60	147	8	—	—	—
30	413	9	61	139	7			

* MORTALLY. *adv.* [from *mortal.*] 1. Irrecoverably; to death.—In the battle of Landen you were not only dangerouſly, but, in all appearance, *mortally* wounded. *Dryden.* 2. Extremely; to extremity. A low ludicrous word.—Adrian *mortally* envied poets, painters, and artificers. *Bacon.*—

Know all, who would pretend to my good
grace,
I *mortally* diſlike a damning face. *Granv.*

(1.) MORTANCESTRY, *n. ſ.* in Scots law, dead anceſtors.

(2.) MORTANCESTRY, BRIEF OF, in Scots law; anciently the ground of an action at the inſtance of an heir, in the ſpecial caſe where he had been excluded from the poſſeſſion of his anceſtor's eſtate by the ſuperior, or other perſon pretending right.

(1.) * MORTAR. *n. ſ.* [*morter*, Dutch; *mortier*, French.] Cement made of lime and ſand with water, and uſed to join ſtones or bricks.—*Mortar*, in architecture, is a preparation of lime and ſand mixed up with water, ſerving as a cement, and uſed by maſons and bricklayers in building of walls of ſtone and brick. Wolfius obſerves, that the ſand ſhould be dry and ſharp, ſo as to prick the hands when rubbed; yet not earthy, ſo as to foul the water it is waſhed in: he alſo finds fault with maſons and bricklayers as committing a great error, in letting their lime ſlacken and cool before they make up their *mortar*, and alſo in letting their *mortar* cool and die before they uſe it; therefore he adviſes, that if you expect your work to be well done, and to continue long, to work up the lime quick, and but a little at a time, that the *mortar* may not lie long before it be uſed.—I will tread this unbolted villain into *mortar*, and daub the wall of a jakes with him. *Shak.*—They had brick for ſtone and ſlime for *mortar*. *Gen.*—Lime hot out of the kiln, mixed ſoft with water, putting ſand to it, will make better *mortar* than any other. *Mortimer.*

(2.) MORTAR. See CEMENT, § 3. Under that article is given the theory of mortar, as delivered by Dr Anderſon; which has now received a farther confirmation by a recent diſcovery, that if the lime is ſlaked, and the mortar made up, with lime-water inſtead of common water, the mortar will be much better. The reaſon is, that in common water, eſpecially ſuch as is drawn from wells, there is always a conſiderable quantity of fixed air, which, mingling with the mortar previous to its being uſed, ſpoils it by reducing the quicklime in part to an inert calcareous earth like chalk; but when it is built up in a perfectly cauſtic ſtate, it attracts the air ſo ſlowly, that it hardens into a kind of ſtony matter, as hard as was the rock from whence the limeſtone was taken.

(3.) * MORTAR. *n. ſ.* [*mortarium*, Lat. *mortier*, French.] 1. A ſtrong veſſel in which materials are broken by being pounded with a peſtle.—Except you could bray Chriſtendom in a *mortar*, and mould it into a new paſte, there is no poſſibility of an holy war. *Bacon.*—The action of the diaphragm and muſcles ſerves for the comminution of the meat in the ſtomach by their conſtant agitation upwards and downwards, reſembling the pounding of materials in a *mortar*. *Ray.* 2. A ſhort wide cannon out of which bombs are thrown.

Thoſe arms which for nine centuries had
brav'd
The wrath of time on antique ſtone engrav'd,
Now torn by *mortars*, ſtand yet undefac'd
On nobler trophies, by thy valour rais'd. *Granv.*

(4.) *A* MORTAR (§ 3. *def.* 1.) is a chemical utenſil very uſeful for the diviſion of bodies, partly by percuſſion and partly by grinding. Mortars have the form of an inverted bell. The matter intended to be pounded is to be put into them, and is ſtruck and bruiſed by a long inſtrument called a PESTLE. The motion given to the peſtle ought to vary according to the nature of the ſubſtances to be pounded. Thoſe which are eaſily broken, or which are apt to fly out of the mortar, or which are hardened by the ſtroke of the peſtle, require that this inſtrument ſhould be moved circularly, rather by grinding or bruiſing than by ſtriking. Thoſe ſubſtances which are ſoftened by the heat occaſioned by rubbing and percuſſion, require to be pounded very ſlowly. Thoſe which are very hard, and which are not capable of being ſoftened, are eaſily pounded by repeated ſtrokes of the peſtle. They require no bruiſing but when they are brought to a certain degree of fineneſs. But theſe things are better learned by habit and practice than by directions. As mortars are conſtantly neceſſary in chemiſtry, they ought to be kept of all ſizes and materials; as of marble, copper, glaſs, iron, gritſtone, and agate. The nature of the ſubſtance to be pounded determines the choice of the kind of mortar. The hardneſs and diſſolving power of that ſubſtance are particularly to be attended to. As copper is a ſoft metal ſoluble by almoſt all menſtruums, and hurtful to health, good artiſts have ſome time ago proſcribed the uſe of this metal. One of the principal inconveniences of pulveriſation in a mortar proceeds from the fine powder which riſes abundantly from ſome ſubſtances during the operation. If theſe ſubſtances be precious, the loſs will be conſiderable; and if they be injurious to health, they may hurt the operator. Theſe inconveniences may be remedied, either by covering the mortar with a ſkin, in the middle of which is a hole, through which the peſtle paſſes, or by moiſtening the matter with a little water when this addition does not injure it; or, laſtly, by covering the mouth and noſe of the operator with a fine cloth, to exclude this powder. Some ſubſtances, as corroſive ſublimate, arſenic, calxes of lead, cantharides, euphorbium, &c. are ſo noxious, that all theſe precautions ought to be uſed, particularly when a large quantity of them is pounded. Large mortars ought to be fixed upon a block of wood, ſo high, that the mortar ſhall be level with the middle of the operator. When the peſtle is large and heavy, it ought to be ſuſpended by a cord or chain fixed to a moveable pole, placed horizontally above the mortar: this pole conſiderably relieves the operator, becauſe its elaſticity aſſiſts the raiſing of the peſtle.

(5.) **MORTAR, or MORTAR-PIECE**, (§ 3. *def.* 2.) in the military art, is a ſhort piece of ordnance, thick and wide, proper for throwing bombs, carcaſes, ſhells, ſtones, bags filled with grape-ſhot, &c. See PROJECTILES.

(6.) **MORTARS, LAND**, are thoſe uſed in ſieges, and of late in battles, mounted on beds made of ſolid timber, conſiſting generally of four pieces, thoſe of the royal and cohorn excepted, which are but one ſingle block; and both mortar and bed are tranſported on block-carriages. There is likewiſe a kind of land mortars, mounted on travelling carriages, invented by Count Buckeburg, which may be elevated to any degree; whereas ours are fixed to an angle of 45 degrees, and firmly laſhed with ropes. The following table ſhows the weight of land-mortars and ſhells; together with the quantity of powder the chambers hold when full; the weight of the ſhells, and powder for loading them.

Diameter of mortars.	13-inch.	10-inch.	8-inch.	5·8 inch royal.	4·6-inch cohorn.
	C. qr. lb.	C qr. lb.	C. qr. lb.	C. qr. lb.	C. qr. lb.
Mortar's weight.	25 0 0	10 2 18	4 0 20	1 1 0	0 3 0
Shell's weight.	1 2 15	0 2 25	0 1 15	0 0 12	0 0 7
	lb. oz. gr.	lb. oz. gr.	lb. oz. gr.	lb. oz. gr.	lb. oz. gr.
Shell's cont. of powder.	9 4 8	4 14 12	2 3 8	1 1 8	0 8 0
Chamber's cont. of powder.	9 1 8	4 0 0	2 0 10	1 0 0	0 8 0

(7. **MORTARS, SEA**, are thoſe which are fixed in the bomb-veſſels for bombarding places by ſea: and as they are generally fired at a much greater diſtance than that which is required by land, they are made ſomewhat longer and much heavier than the land mortars. The following table exhibits the weight of the ſea-mortars and ſhells, and alſo of their full charges:

Nature of the mortar.	Powder contained in the chamber when full.	Weight of the mortar.	Weight of the ſhell when fixed.	Weight of powder contained in the ſhell.
	lb. oz.	C. qr. lb.	lb.	lb. oz.
10-inch howitzer.	12 0	31 2 26		
13-inch mortar.	30 0	81 2 1	198	7 0
10-inch mortar.	12 0	34 2 11	93	

(8.) **MORTARS, TO CHARGE, OR LOAD.** The proper quantity of gunpowder is put into the chamber, and if there be any vacant ſpace they fill it up with hay; ſome chooſe a wooden plug; over this they lay a turf; ſome a wooden tampion fitted to the bore of the piece; and laſtly the bomb; taking care that the fuſe be in the axis thereof, and the orifice be turned from the muzzle of the piece: what ſpace remains is to be filled up with hay, ſtraw, turf, &c. ſo as the load may not be exploded without the utmoſt violence. The quantity of gunpowder to be uſed is found by dividing the weight of the bomb by 30; though this rule is not always to be ſtrictly obſerved. When the proper quantity of powder neceſſary to charge a ſea mortar is put into the chamber, it is covered with a wad well beat down with the rammer. After this the fixed ſhell is placed upon the wad, as near the middle of the mortar as poſſible, with the fuſe-hole uppermoſt, and another wad preſſed down cloſe upon it, ſo as to keep the ſhell firm in its poſition. The officer then points the mortar according to the propoſed inclination. When the mortar is thus fixed, the fuſe is opened; the priming iron is alſo thruſt into the touch-hole of the mortar to clear it, after which it is primed with the fineſt powder. This done, two of the matroſſes or ſailors, taking each one of the matches, the firſt lights the fuſe, and the other fires the mortar. The bomb, thrown out by the exploſion of the powder, is carried to the place intended: and the fuſe, which ought to be exhauſted at the inſtant of the ſhell's falling, inflames the powder contained in it, and burſts the ſhell in ſplinters; which, flying off circularly, occaſion incredible miſchief whereſoever they reach. If the ſervice of mortars ſhould render it neceſſary to uſe pound-ſhots, 200 of them with a wooden bottom are to be put into the 13 inch mortar, and a quantity of powder not exceeding 5 pounds; and 100 of the above ſhot with 2½ pounds of powder, for the 10 inch mortar, or 3 pounds at moſt.

(9.) **Mortar, to elevate the**, ſo as its axis may make any given angle with the horizon, they apply the artillery-level, or gunner's quadrant. An elevation of 70 or 80 degrees is commonly choſen for rendering mortars moſt ſerviceable in caſting ſhells into towns, forts, &c. though the greateſt range be at 45 degrees. All the Engliſh mortars are fixed to an angle of 45 degrees, and laſhed ſtrongly with ropes at that elevation; although in a ſiege there is only one caſe in which ſhells ſhould be thrown with an angle of 45 degrees; that is, when the battery is ſo far off that they cannot otherwiſe reach the works: for when ſhells are thrown out of the trenches into the works of a fortification, or from the town into the trenches, they ſhould have as little elevation as poſſible, in order to roll along, and not bury themſelves; whereby the damage they do, and the terror they occaſion, are much greater than if they ſink into the ground. On the contrary, when ſhells are thrown upon magazines or any other buildings with an intention to deſtroy them, the mortars ſhould be elevated as high as poſſible, that the ſhells may acquire a greater force in their fall, and conſequently do greater execution. If all mortar-pieces were, as they ought to be, exactly ſimilar, and their requiſites of powder as the cubes of the diameters of their ſeveral bores, and if their ſhells, bombs, carcaſes, &c. were alſo ſimilar; then, comparing like with like, their ranges on the plane of the horizon, under the ſame degree of elevation, would be equal; and conſequently one piece being well proved, *i. e.* the range of the grenado, bomb, carcaſe, &c. being found to any degree of elevation, the whole work of the mortar-piece would become very eaſy and exact. But as mortars are not thus ſimilar, it is required, that the range of the piece, at ſome known degree of elevation, be accurately found by meaſuring; and from hence all the other ranges may be determined. Thus, to find the range of the piece at any other elevation required; ſay, As the ſine of double the angle under which the experiment was made, is to the ſin of double the angle propoſed, ſo is the rang known to the range required. Suppoſe, for inſtance, it be found, that the range of a piece, elevated to 30°, is 2000 yards: to find the range o the ſame piece with the ſame charge when elevated to 45°; take the ſine of 60°, the double o 30°, and make it the firſt term of the rule o three; the ſecond term muſt be the ſine of 90° the double of 45°, and the third the given rang 2000; the fourth term will be 2310, the range o the piece at 45°. If the elevation be greater tha 45°, inſtead of doubling it, take the ſine of doubl its complement to 90°. As ſuppoſe the elevatio of a piece be 50°, take the ſine of 80°, the doubl of 40°. Again, if a determinate diſtance to which a ſhot is to be caſt, be given, and the angle o elevation to produce that effect be required; the range known muſt be the firſt term in the rule o three, which ſuppoſe 2000 yards; the range propoſed, which we ſuppoſe 1600 yards, the ſecond term; and the ſine of 60 double of the elevation for the range of 2000 yards, the third term. The 4th term will be found the ſine of 43° 52′, whoſe half 21° 56′ is the angle of elevation the piece muſt have to produce the deſired effect. And if 21° 56′ be taken from 90°, you will have 68° 4′ for the other elevation of the piece, with which the ſame effect will likewiſe be produced. To avoid the trouble of finding ſines of double the angles of propoſed elevations, Galileo and Torricelli give us the following table, wherein the ſigns of the angles ſought are had by inſpection.

Deg.	Deg.	Rang.	Deg.	Deg.	Rang.
90	0	0	0	0	0
89	1	349	66	24	7431
88	2	698	65	25	7660
87	3	1045	64	26	7880
86	4	1392	63	27	8090
85	5	1736	62	28	8290
84	6	2709	61	29	8480
83	7	2419	60	30	8660
82	8	2556	59	31	8829
81	9	3090	58	32	8988
80	10	3420	57	33	9135
79	11	3746	56	34	9272
78	12	4067	55	35	9397
77	13	4384	54	36	9511
76	14	4695	53	37	9613
75	15	5000	52	38	9703
74	16	5299	51	39	9781
73	17	5592	50	40	9841
72	18	5870	49	41	9903
71	19	6157	48	42	9945
70	20	6428	47	43	9976
69	21	6691	46	44	9994
68	22	6947	45	45	10000
67	23	7193			

The uſe of the table is obvious. Suppoſe, for inſtance, it be known by experiment, that a mortar elevated 15°, charged with 3 lb. of powder, will throw a bomb to the diſtance of 350 fathoms; and it be required, with the ſame charge, to throw a bomb 100 fathoms farther; ſeek in the table the number anſwering to 15 degrees, and you will find it 5000. Then as 350 is to 450, ſo is 5000 to a fourth number, which is 6428. Find this number, or the neareſt to it, in the table, and againſt it you will find 20° or 70°; the proper angles of elevation.

MORTARA, a town of Italy, in the dep. of Olona, and late diſtrict of Lumellin, in the Milaneſe; 7 miles N. of Lumello; memorable for the defeat of Deſiderius, the laſt king of the Lombards, by Charlemagne.

(1.) MORTE, a lake of Germany, in Tirol.

(2.) **Morte Point**, a cape of Devonſhire.

MORTEAU, a town of France, in the dep. of Doubs. 8 miles ESE. of Beſançon.

MORTEMART, a town of France, in the dep. of the Upper Vienne, 6 miles SSW. of Bellac.

MORTER, an iſland on the coaſt of Dalmatia, 25 miles in circumference; ſuppoſed to be the *Calentum* of Pliny.

MORTEROL, a town of France, in the dep. of Upper Vienne, 12 miles ESE. of Dorat.

(1.)* MORTGAGE. *n. ſ.* [*mort* and *gage*, Fr.] 1. A dead pledge; a thing put into the hands of a creditor.—

Th' eſtate runs out, and *mortgages* are made,
Their fortune ruin'd. *Dryden.*

—The Romans do not ſeem to have known the ſecret of paper credit, and ſecurities upon *mortgages*. *Arbuthnot.*—

Bent on ſome *mortgage*, to avoid reproach,
He ſeeks bye-ſtreets. *Gay.*

2. The ſtate of being pledged.—

The land is given in *mortgage* only. *Bacon.*

(2.) **Mortgage**, in Engliſh law, (*mortuum vadium*, or dead pledge), is where a man borrows of another a ſpecific ſum (*e. g.* L.200), and grants him an eſtate in fee, on condition that if he, the mortgager, ſhall pay the morgagee the ſaid ſum of L.200 on a certain day mentioned in the deed, that then the mortgager may re-enter on the eſtate ſo granted in pledge; or, as is now the more uſual way, that the mortgagee ſhall re-convey the eſtate to the mortgager: in this caſe the land which is ſo put in pledge, is by law, in caſe of non-payment at the time limited, for ever dead and gone from the mortgager; and the mortgagee's eſtate in the lands is then no longer conditional, but abſolute. But ſo long as it continues conditional, that is, between the time of lending the money and the time allotted for payment, the mortgagee is called *tenant in mortgage*. But as it was formerly a doubt, whether, by taking ſuch eſtate in fee, it did not become liable to the wife's dower, and other incumbrances of the mortgage (though that doubt has been long ago over-ruled by our courts of equity), it therefore became uſual to grant only a long term of years, by way of mortgage; with condition to be void on repayment of the mortgage money; which courſe has been ſince continued, principally becauſe, on the death of the mortgagee ſuch terms becomes veſted in his perſonal repreſentatives, who alone are entitled in equity to receive the money lent, of whatever nature the mortgage may happen to be. As ſoon as the eſtate is created, the mortgagee may immediately enter on the lands; but is liable to be diſpoſſeſſed, upon performance of the condition by payment of the mortgage-money at the day limited. And therefore the uſual way is to agree that the mortgager ſhall hold the land till the day aſſigned for payment; when, in caſe of failure, whereby the eſtate becomes abſolute, the mortgagee may enter upon it and take poſſeſſion, without any poſſibility at law of being afterwards evicted by the mortgager, to whom the land is now for ever dead. But here again the courts of equity interpoſe; and though a mortgage be thus forfeited, and the eſtate abſolutely veſted in the mortgagee at the common law, yet they will conſider the real value of the tenements compared with the ſum borrowed. And if the eſtate be of greater value than the ſum lent thereon, they will allow the mortgager at any reaſonable time to recall or redeem his eſtate; paying to the mortgagee his principal, intereſt, and expenſes: for otherwiſe, in ſtrictneſs of law, an eſtate worth L.1000 might be forfeited for non-payment of L.100, or a leſs ſum. This reaſonable advantage allowed to mortgagers, is called the *equity of redemption;* and this enables a mortgager to call on the mortgagee, who has poſſeſſion of his eſtate, to deliver it back, and account for the rents and profits received on payment of his whole debt and intereſt, thereby turning the *mortuum* into a kind of *vivum vadium*. (See **Vadium**, N° 2.) But, on the other hand, the mortgagee may either compel the ſale of the eſtate, in order to get the whole of his money immediately; or elſe call upon the mortgager to redeem his eſtate preſently, or, in default thereof, to be for ever foreclosed from redeeming the ſame; that is, to loſe the equity of redemption, without poſſibility of recall. And alſo, in ſome caſes of fraudulent morgages, the fradulent mortgager forfeits all equity of redemption whatſoever. It is not, however, uſual for mortgagees to take poſſeſſion of the mortgaged eſtate, unleſs where the ſecurity is precarious, or ſmall; or where the mortgager neglects even the payment of intereſt; when the mortgagee is often obliged to bring an ejectment, and take the land into his own hands, in the nature of a pledge, or the *pignus* of the Roman law: whereas, while it remains in the hands of the mortgager, it more reſembles their hypotheca, which was where the poſſeſſion of the thing pledged remained with the debtor. But by ſtatute 7. Geo. II. c. 20. after payment or tender by the mortgager of principal, intereſt, and coſts, the mortgagee can maintain no ejectment; but may be compelled to re-aſſign his ſecurities. In Glanvil's time, when the univerſal method of conveyance was by livery of ſeiſin or corporal tradition of the lands, no gage or pledga of lands was good unleſs poſſeſſion was alſo delivered to the creditor; *ſi non ſequatur ipſius vadii traditio, curia domini regis hujuſmodi privatas conventiones tueri non ſolet:* for which the reaſon given is, to prevent ſubſequent and fraudulent pledges of the ſame land; *cum in tali caſu poſſit eadem res pluribus aliis creditoribus, tum prius tum poſterius, invadiari.* And the frauds which have ariſen, ſince the exchange of theſe public and notorious conveyances for more private and ſecret bargains, have well evinced the wiſdom of the ancient law.

* *To* **Motgage.** *v. a.* [from the noun.] To pledge; to put to pledge; to make over to a creditor as a ſecurity.—Let men contrive how they diſentangle their *mortgaged* ſouls. *Decay of Piety.*

They make the widow's *mortgag'd* ox their
prey. *Sandys.*

—Their expenſive way of living has forced them to *mortgage* their beſt manors. *Arbuthnot.*—

Lands unmanur'd by us, and *mortgag'd* o'er,
and o'er. *Harte.*

* MORTGAGEE. *n.ſ.* [from *mortgage.*] He that takes or receives a mortgage.—An act may paſs for public regiſtries of land, by which all purchaſers or *mortgagees* may be ſecured of all monies they lay out. *Temple.*

* MORTGAGER. *n.ſ.* [from *mortgage.*] He that gives a mortgage.

MORTIER. *n.ſ.* an enſign of dignity, borne by the ci-devant chancellor and grand preſidents of the parliament of France. That borne by the chancellor was a piece of cloth of gold, edged and turned up with ermine; and that of the firſt preſident a piece of black velvet, edged with a double row of gold-lace, while thoſe of the other preſidents were only edged with a ſingle row. Theſe they carried on their heads, in grand ceremonies, ſuch as the entry of the king; but ordinarily they carried them in their hands.

* MORTIFEROUS. *adj.* [*mortifer*, Latin.] Fatal; deadly, deſtructive.—To give men no reſt in their ſins, till they awake from the lethargic ſleep, and raiſe from ſo dead, ſo *mortiferous* a ſtate. *Hammond.*—Theſe murmurings, like a *mortiferous* herb, are poiſonous even in their firſt ſpring. *Gov. of the Tongue.*

(1.) * MORTIFICATION. *n.ſ.* [*mortification*, Fr. from *mortify.*] 1. The ſtate of corrupting, or loſing the vital qualities; gangrene.—It appeareth in the gangrene, or *mortification* of fleſh, either by opiates, or intenſe colds. *Bacon.*—

Wounds immedicable
Rankle and feſter, and gangrene,
To black *mortification.* *Milton.*

2. Deſtruction of active qualities.—What gives impediment to union or reſtitution, is called *mortification.* *Bacon.* 3. The act of ſubduing the body by hardſhips and macerations. A diet of ſome fiſh is more rich and alkaleſcent than that of fleſh, and therefore very improper for ſuch as practiſe *mortification.* *Arbuthnot.* 4. Humiliation; ſubjection of the paſſions.—The *mortification* of our luſts has ſomething in it that is troubleſome. *Tillotſon.*—You ſee no real *mortification* or ſelf-denial in the common lives of Chriſtians. *Law.* 5. Vexation; trouble.—It is one of the vexatious *mortifications* of a ſtudious man, to have his thoughts diſordered by a tedious viſit. *L'Eſtrange.*—We had the *mortification* to loſe the ſight of Munich, Augſburg, and Ratiſbon. *Addiſon.*

(2.) MORTIFICATION, in medicine and ſurgery, (§ 1, *def.* 1.) is a total extinction of the natural heat of the body, or a part thereof. Some define mortification a diſeaſe, wherein the natural juices of any part quite loſe their proper motion; and thus fall into a fermentative one, and corrupt and deſtroy the texture of the part. See SURGERY.

(3.) MORTIFICATION, in religion, (§ 1, *def.* 3.) is any ſevere penance obſerved on a religious account. The practice has been very ancient and almoſt univerſal. See FAST, § 4.

(1.) * *To* MORTIFY. *v. a.* [*mortifier*, French.] 1. To deſtroy vital qualities. 2. To deſtroy active powers, or eſſential qualities.—What gives impediment to union or reſtitution is called mortification, as when quickſilver is *mortified* with turpentine. *Bacon.*—He *mortified* pearls in vinegar, and drank them up. *Hakew.*—Oil of tartar per deliquium has a great faculty to find out and *mortify* acid ſpirits. *Boyle.* 3. To ſubdue inordinate paſſions.—

The breath no ſooner left his father's body,
But that his wildneſs *mortified* in him,
Seem'd to die too. *Shak.*

Mortify thy learned luſt. *Prior.*
His pupil might be tir'd with lectures,
Which help to *mortify* his pride. *Swift.*

4. To macerate or haraſs; in order to reduce the body to compliance with the mind.—

Their dear cauſes
Would to the bleeding and the grim alarm
Excite the *mortified* man. *Shak.*

—We *mortify* ourſelves with fiſh, and think we fare coarſely if we abſtain from fleſh. *Brown.*—

Mortified he was to that degree,
A poorer than himſelf he would not ſee. *Dryd.*
With faſting *mortified*, worn out with tears,
And bent beneath the load of ſev'nty years. *Harte.*

5. To humble; to depreſs; to vex.—

Let my liver rather heat with wine,
Than my heart cool with *mortifying* groans. *Sh.*

—He is controuled by a nod, *mortified* by a frown, and tranſported by a ſmile. *Addiſon.*—How often is the ambitious man *mortified* with the very praiſes he receives, if they do not raiſe ſo high as he thinks they ought. *Spectator.*

(2.) * *To* MORTIFY. *v. n.* 1. To gangrene; to corrupt.—Try it with capon laid abroad, to ſee whether it will *mortify* and become tender ſooner. *Bacon.* 2. To be ſubdued; to die away. 3. To practiſe religious ſeverities.—This makes him careful of every temper of his heart, give alms of all that he hath, watch, and faſt, and *mortify.* *Law.*

MORTIMAR, Athenais DE, marchioneſs MONTESPAN, wife of the marquis of Monteſpan, and one of Lewis XIV.'s miſtreſſes. By her wit and beauty ſhe gained a complete aſcendancy over that monarch in 1669. Her huſband, inſtead of thinking himſelf honoured by the connection, became enraged, and even ſtruck her in the palace, for which he was baniſhed to his eſtate; but 100,000 crowns purchaſed his ſilence, his wife, and his honour. She held the monarch captive till 1675, when he became the victim of Mad. De MAINTENON's ſuperior charms. Theſe two rivals, however, kept up an intimacy, and even agreed to write *Memoirs of all that paſſed at Court*, but the work was never completed. Athenais had 3 children by Lewis; a ſon created D. of Maine, and married to a grand-daughter of the great Conde, and two daughters, married, the one to a grandſon of that prince, and the other to the D. of Chartres. She died at Bourbon, in 1717.

MORTIMER, John Hamilton, an Engliſh artiſt, born at Eaſt Bourne in Suſſex, in 1739. He ſtudied under his uncle; afterwards under Hudſon and Sir Joſhua Reynolds. In 1779, the king appointed him a royal academican, but he died that year, at his houſe in Norfolk-ſtreet, aged 40. "King John granting the Magna Charta to the barons," and the "Battle of Agincourt," two of his capital pictures, have been engraved. The firſt was nearly finiſhed by Mr Ryland and completed ed by Mr Bartolozzi. His piece repreſenting St Paul converting the Britons, gained the Society's prize of 100 guineas.

MORTINSPERG, a town of Auſtria.

(1.) * MORTISE. *n. ſ.* [*mortaiſe*, *mortoiſe*, Fr.] A hole cut into wood that another piece may be put into it and form a joint.—

If it hath ruffian'd ſo upon the ſea,
What ribs of oak, when mountains melt on them,
Can hold the *mortiſe*. *Shak.*

—Under one ſkin are parts variouſly mingled, ſome with cavities, as *morteſſes* to receive, others with tenons to fit cavities. *Ray.*

(2.) A **Mortise**, or **Mortoise**, in carpentry, is a kind of joint wherein a hole of a certain depth is made in a piece of timber, which is to receive another piece called a *tenon*.

* *To* **Mortise**. *v. a.* 1. To cut with a mortiſe; to join with a mortiſe.—

'Tis a maſſy wheel,
To whoſe huge ſpoke ten thouſand leſſer things
Are *mortis'd* and adjoin'd. *Shak.*

The walls of ſpiders legs are made,
Well *mortiſed* and finely laid. *Drayton.*

2. It ſeems in the following paſſage improperly uſed.—The one half of the ſhip being finiſhed, and by the help of a ſcrew launched into the water, the other half was joined by great braſs nails *mortiſed* with lead. *Arbuthnot.*

MORTIZEN, St. See **Maurice**, N° 8.

MORTLING. See **Morling**.

(1.) MORTMAIN. *n. ſ.* [*morte*, and *main*, Fr.] Such a ſtate of poſſeſſion as makes it unalienable; whence it is ſaid to be in a *dead hand*, a hand that cannot ſhift away the property.—It were meet that ſome ſmall portion of lands were allotted, ſince no more *mortains* are to be looked for *Spenſer.*

(2.) **Mortmain**, or **Alienation** in **Mortmain**, *in mortua manu*, is an alienation of lands or tenements to any corporation, ſole or aggregate, eccleſiaſtical or temporal. (See **Corporation**.) But theſe purchaſes having been chiefly made by religious houſes, in conſequence whereof the lands became perpetually inherent in one dead hand, this occaſioned the general appellation of *mortmain* to be applied to ſuch alienations, and the religious houſes themſelves to be principally conſidered in forming the ſtatutes of mortmain: in deducing the hiſtory of which ſtatutes, it is curious to obſerve the great addreſs and ſubtle contrivance of the eccleſiaſtics in eluding, from time to time, the laws in being, and the zeal with which ſucceſſive parliaments have purſued them through all their fineſſes: how new remedies were ſtill the parents of new evaſions; till the legiſlature at laſt, though with difficulty, have obtained a deciſive victory. By the common law any man might diſpoſe of his lands to any other private man at his own diſcretion, eſpecially when the feodal reſtraints of alienation were worn away. "Yet (ſays Blackſtone), in conſequence of theſe it was always, and is ſtill neceſſary, for corporations to have a licence of mortmain from the crown, to enable them to purchaſe lands; for as the king is the ultimate lord of every fee, he ought not, unleſs by his own conſent, to loſe his privilege of eſcheats and other feodal profits, by the veſting of lands in tenants that can never be attainted or die. And ſuch licences of mortmain ſeem to have been neceſſary among the Saxons above 60 years before the Norman conqueſt. But, beſides this general licence from the king as lord paramount of the kingdom, it was alſo requiſite, whenever there was a meſne or intermediate lord between the king and the alienor, to obtain his licence alſo (upon the ſame feodal principles) for the alienation of the ſpecific land. And if no ſuch licence was obtained, the king or other lord might reſpectively enter on the lands ſo alienated in mortmain, as a forfeiture. The neceſſity of this licence from the crown was acknowledged by the conſtitutions of Clarendon, in reſpect of advowſons, which the monks always greatly coveted, as being the groundwork of ſubſequent appropriations. Yet ſuch were the influence and ingenuity of the clergy, (that notwithſtanding this fundamental principle) the largeſt and moſt conſiderable donations of religious houſes happened within leſs than two centuries after the conqueſt. And (when a licence could not be obtained) their contrivance ſeems to have been this: that as the forfeiture for ſuch alienations accrued in the firſt place to the immediate lord of the fee, the tenant who meant to alienate firſt conveyed his lands to the religious houſe, and inſtantly took them back again to hold as tenant to the monaſtery; which kind of inſtantaneous ſeiſin was probably held not to occaſion any forfeiture: and then, by pretext of ſome other forfeiture, ſurrender, or eſcheat, the ſociety entered into thoſe lands in right of ſuch their newly acquired ſigniory, as immediate lords of the fee. But when theſe donations began to grow numerous, it was obſerved that the feodal ſervices, ordained for the defence of the kingdom, were every day viſibly withdrawn; that the circulation of landed property from man to man began to ſtagnate; and that the lords were curtailed of the fruits of their ſigniories, their eſcheats, wardſhips, reliefs, and the like: and therefore, in order to prevent this, it was ordained by the ſecond of King Henry III's great charters, and afterwards by that printed in our common ſtatute-books, that all ſuch attempts ſhould be void, and the land forfeited to the lord of the fee. But as this prohibition extended only to religious houſes, biſhops and other ſole corporations were not included therein; and the aggregate eccleſiaſtical bodies (who, Sir Edward Coke obſerves, in this were to be commended, that they ever had of their counſel the beſt learned men that they could get) found many means to creep out of this ſtatute, by buying in lands that were *bona fide* holden of themſelves as lords of the fee, and thereby evading the forfeiture; or by taking long leaſes for years, which firſt introduced thoſe extenſive terms for a thouſand or more years, which are now ſo frequent in conveyances. This produced the ſtatute *de religioſis*, 7 Edward I.: which provided, that no perſon, religious or other whatſoever, ſhould buy, or ſell, or receive, under pretence of a gift, or term of years, or any other title whatſoever, nor ſhould, by any art or ingenuity, appropriate to himſelf, any lands or tenements in mortmain;

upon pain that the immediate lord of the fee, or, on his default for one year, the lords paramount, and, in default of all of them, the king, might enter thereon as a forfeiture. This ſeemed to be a ſufficient ſecurity againſt all alienations in mortmain: but as theſe ſtatutes extended only to gifts and conveyances between the parties, the religious houſes now began to ſet up a fictitious title to the land which it was intended they ſhould have, and to bring an action to recover it againſt the tenant; who, by fraud and colluſion, made no defence, and thereby judgment was given for the religious houſe, which then recovered the land by a ſentence of law upon a ſuppoſed prior title. And thus they had the honour of inventing thoſe fictitious adjudications of the right, which are ſince become the great aſſurance of the kingdom, under the name of *common* RECOVERIES. But upon this the ſtatute of Weſtminſter the ſecond, 13 Edw. I. c. 32. enacted, that in ſuch caſes a jury ſhall try the true right of the demandants or plaintiffs to the land; and if the religious houſe or corporation be found to have it, they ſhall ſtill recover ſeiſin: otherwiſe it ſhall be forfeited to the immediate lord of the fee, or elſe to the next lord, and finally to the king, upon the immediate or other lords default. And the like proviſion was made by the ſucceeding chapter, in caſe the tenants ſet up croſſes upon their lands (the badges of knights templars and hoſpitallers) in order to protect them from the feudal demands of their lords, by virtue of the privileges of thoſe religious and military orders. And ſo careful was this provident prince to prevent any future evaſions, that when the ſtatute of *quia emptores*, 18 Edward I. aboliſhed all ſub-infeudations, and gave liberty for all men to alienate their lands to be holden of their next immediate lord, a proviſo was inſerted that this ſhould not extend to authoriſe any kind of alienation in mortmain. And when afterwards the method of obtaining the king's licence by writ of *ad quod danum* was marked out by the ſtatute 27 Edward I. ſt. 2. it was farther provided by ſtatute 34 Edward I. ſt. 5. that no ſuch licence ſhould be effectual without the conſent of the meſne or intermediate lords. Yet ſtill it was difficult to ſet bounds to eccleſiaſtical ingenuity: for when they were driven out of all their former holds, they deviſed a new method of conveyance, by which the lands were granted, not to themſelves directly, but to nominal feoffees to the uſe of the religious houſes; thus diſtinguiſhing between the poſſeſſion and the uſe, and receiving the actual profits, while the ſeiſin of the land remained in the nominal feoffee; who was held by the courts of equity (then under the direction of the clergy) to be bound in conſcience (to account to his *ceſtuy que uſe* for the rents and emoluments of the eſtate. And it is to theſe inventions that our practiſers are indebted for the introduction of uſes and truſts, the foundation of modern conveyancing. But, unfortunately for the inventors themſelves, they did not long enjoy the advantage of their new device; for the ſtatute 15 Richard II. c. 5. enacts, that the lands which had been ſo purchaſed to uſes ſhould be amortiſed by licence from the crown, or elſe be ſold to private perſons; and that for the future uſes ſhall be ſubject to the ſtatutes of mortmain, and forfeitable like the lands themſelves. And whereas the ſtatutes had been eluded by purchaſing large tracts of land adjoining to churches, and conſecrating them by the name of *church-yards*, ſuch ſubtile imagination is alſo declared to be within the compaſs of the ſtatutes of mortmain. And civil or lay corporations, as well as eccleſiaſtical, are alſo declared to be within the miſchief, and of courſe within the remedy provided by thoſe ſalutary laws. And laſtly, as during the times of popery, lands were frequently given to ſuperſtitious uſes, though not to any corporate bodies; or were made liable in the hands of heirs and deviſees to the charge of obits, chauntries, and the like, which were equally pernicious in a well-governed ſtate as actual alienations in mortmain; therefore, at the dawn of the Reformation, the ſtatute 23 Henry VIII. c. 10. declares, that all future grants of lands for any of the purpoſes aforeſaid, if granted for any longer term than 20 years, ſhall be void. But during all this time it was in the power of the crown, by granting a licence of mortmain, to remit the forfeiture, ſo far as related to its own rights; and to enable any ſpiritual or other corporation to purchaſe and hold any lands or tenements in perpetuity; which prerogative is declared and confirmed by the ſtatute 18 Edw. III. ſt. 3. c. 3. But as doubts were conceived at the time of the Revolution how far ſuch licence was valid, ſince the king had no power to diſpenſe with the ſtatutes of mortmain by a clauſe of *non obſtante*, which was the uſual courſe, though it ſeems to have been unneceſſary; and as by the gradual declenſion of meſne ſignories through the long operation of the ſtatute of *quia emptores*, the rights of intermediate lords were reduced to a very ſmall compaſs; it was therefore provided by the ſtatute 7 and 8 W. III. c. 37. that the crown for the future at its own diſcretion may grant licences to alienate or take in mortmain, of whomſoever the tenements may be holden. After the diſſolution of monaſteries under Henry VIII. though the policy of the next popiſh ſucceſſor affected to grant a ſecurity to the poſſeſſors of abbey lands, yet, in order to regain ſo much of them as either the zeal or timidity of their owners might induce them to part with, the ſtatutes of mortmain were ſuſpended for 20 years by the ſtatute of 1 and 2 P. and M. c. 8. and during that time any lands or tenements were allowed to be granted to any ſpiritual corporation without any licence whatſoever. And long afterwards, for a much better purpoſe, the augmentation of poor livings, it was enacted by the ſtatute 17 Car. II. c. 3. that appropriators may annex the great tithes to the vicarages; and that all benefices under 100l. per annum may be augmented by the purchaſe of lands, without licence of mortmain in either caſe; and the like proviſion hath been ſince made in favour of the governors of queen Anne's bounty. It hath alſo been held, that the ſtatute 23 Henry VIII. before mentioned, did not extend to any thing but ſuperſtitious uſes; and that therefore a man may give lands for the maintenance of a ſchool, an hoſpital, or any other charitable uſes. But as it was apprehended from recent experience, that perſons on their death-beds might make large and improvident diſpoſitions even for theſe good purpoſes, and defeat the political ends of the ſtatutes of mortmain; it is therefore enacted by the ſtatute 9 Geo. II. c. 36. that no lands or tenements, or money to be laid out thereon, ſhall be given for, or charged with any charitable uſes whatſoever, unleſs by deed indented, executed in the preſence of two witneſſes 12 kalendar months before the death of the donor, and enrolled in the court of chancery within ſix months after its execution (except ſtocks in the public funds, which may be transferred within ſix months previous to the donor's death), and unleſs ſuch gift be made to take effect immediately, and be without power of revocation; and that all other gifts ſhall be void. The two univerſities, their colleges and their ſcholars upon the foundation of the colleges of Eton, Wincheſter, and Weſtminſter, are excepted out of this act; but ſuch exemption was granted with this proviſo, that no college ſhall be at liberty to purchaſe more advowſons than are equal in number to one moiety of the fellows or ſtudents upon the reſpective foundations.

(1.) **MORTON**, a pariſh of Scotland, Dumfriesſhire, on the E. bank of the Nith, 15 miles NW. of Dumfries; about 6 miles long from SW. to NE. and 3½ broad, bounded on the N. by the Caron, W. by the Nith, S. and SE. by the Canyile, each of which have bridges. It contains 6,340 Scots acres, of which 1,800 are arable and fertile; and the reſt under meadow, paſture, moſs, and wood. Part of it is hilly. Huſbandry is much improved. The Climate is ſalubrious. The population, in 1791, was 908; increaſe 473 ſince 1755; owing to the diviſion of farms, and late improvements: number of horſes, 119; of ſheep 2527; ſwine, 46, and black cattle 500. The chief village is Thornhill.

(2.) **Morton**, Thomas, a learned Engliſh biſhop in the 17th century, bred at St John's college, Cambridge, and logic-lecturer of the univerſity. After ſeveral preferments he was advanced to the ſee of Cheſter in 1615, and tranſlated to that of Litchfield and Coventry in 1618. In 1632 he was tranſlated to the ſee of Durham, in which he ſat with great reputation till the opening of the long parliament, which met in 1640; when he was committed twice to cuſtody. The parliament, upon the diſſolution of biſhoprics, voted him 800l. a-year, of which he received but a ſmall part. He died in 1659, in the 95th year of his age and 44th of his conſecration. He publiſhed *Apologia Catholica*, and ſeveral other works; and was a man of extenſive learning, great piety, and temperance.

MORTORP, a town of Sweden, in Smaland.

* **MORTPAY.** *n. ſ.* [*mort* and *pay*.] Dead pay; payment not made.—This parliament was merely a parliament of war, with ſome ſtatutes conducing thereunto; as the ſevere puniſhing of *mortpayes*, and keeping back of ſoldiers wages. *Bacon.*

MORTREE, a town of France, in the dep. of Orne, 7½ miles SSE. of Argentan.

* **MORTRESS.** *n. ſ.* [from *mortier de ſageſſe. Skinner.*] A diſh of meat of various kinds beaten together.—A *mortreſs* made with the brawn of capons, ſtamped, ſtrained, and mingled with like quantity of almond butter, is excellent to nouriſh the weak. *Bacon's Nat. Hiſt.*

(1.) * **MORTUARY.** *n. ſ.* [*mortuaire*, French; *mortuarium*, Latin.] A gift left by a man at his death to his pariſh church, for the recompence of his perſonal tythes and offerings not duly paid in his life time. *Harris.*

(2.) **MORTUARY**, in law, is a ſort of eccleſiaſtical heriot, (ſee Heriot, N° 2.) being a cuſtomary gift claimed by and due to the miniſter in very many pariſhes on the death of his pariſhioners. They ſeem originally to have been only a voluntary bequeſt to the church; being intended, as Lyndewode informs us from a conſtitution of Abp. Langham, as a kind of expiation and amends to the clergy for the perſonal tithes, and other eccleſiaſtical duties, which the laity in their life time might have neglected or forgotten to pay. For this purpoſe, after the lord's heriot or beſt good was taken out, the ſecond beſt chattel was reſerved to the church as a mortuary. And therefore in the laws of king Canute, this mortuary is called *ſoul-ſcot*, or *ſymbolum animæ*. And, in purſuance of the ſame principle, by the laws of Venice, where no perſonal tithes have been paid during the life of the party, they are paid at his death out of his merchandiſe, jewels, and other moveables. So alſo, by a ſimilar policy in France, every man that died without bequeathing a part of his eſtate to the church, which was called *dying without confeſſion*, was formerly deprived of Chriſtian burial; or, if he died inteſtate, the relations of the deceaſed, jointly with the biſhop, named proper arbitrators to determine what he ought to have given to the church, in caſe he had made a will. But the parliament, in 1409, redreſſed this grievance. It was anciently uſual in England to bring the mortuary to church along with the corpſe when it came to be buried; and thence it is ſometimes called a *corſe-preſent*: a term which beſpeaks it to have been once a voluntary donation. However, in Bracton's time, ſo early as Henry III. we find it rivetted into an eſtabliſhed cuſtom: inſomuch that the bequeſts of heriots and mortuaries were held to be neceſſary ingredients in every teſtament of chattels. *Imprimis autem debet quilibet, qui teſtamentum fecerit, dominum ſuum de meliori re quam habuerit recognoſcere; et poſtea eccleſiam de alia meliori*: the lord muſt have the beſt good left him as an heriot; and the church the ſecond beſt as a mortuary. But yet this cuſtom was different in different places: *in quibuſdam locis habet eccleſia melius animal de conſuetudine; in quibuſdam ſecundum, vel tertium melius: et in quibuſdam nihil: et ideo conſideranda eſt conſuetudo loci.* This cuſtom ſtill varies in different places, not only as to the mortuary to be paid, but the perſon to whom it is payable. In Wales a mortuary or corſe-preſent was due upon the death of every clergyman to the biſhop of the dioceſe; till aboliſhed, upon a recompence given to the biſhop, by the ſtatute 12 Ann. ſt. 2. c. 6. And in the archdeaconry of Cheſter a cuſtom alſo prevailed, that the biſhop, who is alſo archdeacon, ſhould have, at the death of every clergyman dying therein, his beſt horſe or mare, bridle, ſaddle and ſpurs; his beſt gown or cloak, hat, upper garment under his gown, and tippet, and alſo his beſt ſignet or ring. But by ſtatute 28 Geo. II, c. 6, this mortuary is directed to ceaſe, and the act has ſettled upon the biſhop an equivalent in its room. The king's claim to many goods, on the death of all prelates in England, ſeems to be of the ſame nature; though Sir Edward Coke apprehends, that this is a duty upon death, and not a mortuary; a diſtinction which ſeems to be without a difference. For not only the king's eccleſiaſtical character, as ſupreme ordinary, but alſo the ſpecies of the goods claimed, which bear ſo near a reſemblance to thoſe in the archdeaconry of Cheſter, which was an acknowledged mortuary, puts the matter out of diſpute. The king, according to the record vouched by Sir E. Coke, is entitled to ſix things; the biſhop's beſt horſe or palfrey, with his furniture; his cloak or gown and tippet; his cup and cover; his baſon and ewer; his gold ring; and laſtly his *muta canum*, his mew or kennel of hounds. This variety of cuſtoms with regard to mortuaries, giving frequently a handle to exactions on one ſide, and frauds or expenſive litigations on the other, it was thought proper, by ſtatute 21 Hen. VIII. c. 6. to reduce them to ſome kind of certainty. For this purpoſe it is enacted, that all mortuaries, or corſe preſents to parſons of any pariſh, ſhall be taken in the following manner, unleſs where by cuſtom leſs or none at all is due: viz. for every perſon who does not leave goods to the value of ten marks, nothing; for every perſon who leaves goods to the value of ten marks and under 30 pounds, 3s. 4d. if above 30 pounds, and under 40 pounds, 6s. 8d. if above 40 pounds, of what value ſoever they may be, 10s. and no more. And no mortuary ſhall throughout the kingdom be paid for the death of any feme-covert; nor for any child; nor for any one of full age, that is not a houſekeeper; nor for any wayfaring man; but ſuch wayfaring man's mortuary ſhall be paid in the pariſh to which he belongs. And upon this ſtatute ſtands the law of mortuaries to this day.

(1.) **MORVEN**, a mountain of Caithneſs, in the pariſh of Lutheron, celebrated in the ſongs of Oſſian, as the country of Fingal.

(2.) **Morven**, or **MORVERN**, [Gaelic, *Mor-Earran*, i. e. Great diviſion,] a pariſh of Scotland in Argyleſhire, on a large peninſula, bounded on the N. by Loch-Suineart, and from SE. to NW. by the Sound of Mull. It is 20 miles long and 10 broad, and contains about 60,000 acres. The ſurface is hilly, the climate rainy, yet healthful, many of the natives being long-lived; and the ſoil is poor, light, open, gravelly, earth. The crops are oats, barley and potatoes; but they are very precarious, and often fail. Grazing of cattle is therefore now preferred. The population, in 1793, was 1764, increaſe 541, ſince 1755. The number of ſheep was 14,000; horſes 250, and black cattle, 2,500. About 70 tons of kelp are manufactured. Meal, leather, iron, tar, ropes, merchant goods, &c. are imported, and horſes, ſheep, cows, wool, kelp, timber and bark, exported. There are two excellent harbours, and many ſmall creeks on the coaſt.

MORUGLIENGO, a town of France, in the department of the Seſia, and late lordſhip of Vercelli, in the Piedmonteſe; 20 miles NNW. of Vercelli.

(1.) **MORVIEDRO**, a town of Spain, in Valencia, built on the ſite of the ancient Saguntum, See Saguntum. Among its numerous relics of antiquity, the chief are a caſtle and amphitheatre, It is 13 miles NE. of Valencia. Lon. 0. 10. E. Lat. 39. 38. N.

(2.) **Morviedro**, a river of Valencia, which runs into the ſea at the above town.

MORVILLE, a town of France, in the dep. of the Meurthe; 4 miles SE. of Ponta Mouſſon.

MORVILLIER, a town of France in the dep. of Voſges; 5 miles SW. of Neufchateau.

MORUP, a town of Sweden, in Holland.

MORUS, the mulberry tree, a genus of the tetrandria order, belonging to the monœcia claſs of plants; and in the natural method ranking under the 53d order, *Scabridæ*. The male calyx is quadripartite; and there is no corolla; the female calyx is tetraphyllous; there is no corolla; two ſtyles; the calyx like a berry, with one ſeed. There are 7 ſpecies, viz.

1. Morus alba, the *white mulberry tree*, riſes with an upright trunk, branching 20 or 30 feet high; garniſhed with large, oblique, heart-ſhaped, ſmooth, light-green, ſhining leaves, and monœcious flowers ſucceeded by pale-whitiſh fruit. There is a variety with purpliſh fruit. Mulberry trees are noted for their *leaves* affording the principal food of that valuable inſect the ſilk-worm. See Mulberry, § 2.) The leaves of the *alba* are preferred for this purpoſe in Europe; but in China, where the beſt ſilk is made, the worms are ſaid to be fed with thoſe of the *morus tartarica*. (N° 6.) The advantages of *white mulberry* trees are not confined to the nouriſhment of worms: they may be cut every 3 or 4 years like ſallows and popular trees, to make faggots; and the ſheep eat their leaves in winter, before they are burnt. This kind of food, of which they are extremely fond, is very nouriſhing; it gives a delicacy to the fleſh, and a fineneſs and beauty to the wool. In ſhort, in every climate and in moſt fields, it might be proper, as is the caſe in Spain, to wait for the firſt hoar-froaſt ſhaking off the leaves, which are gathered and placed to dry in ſheds or cart-houſes, taking care always to ſtir them from time to time. In Spain, the ſheep are fed on theſe leaves during the cold and froſts. By this method no injury is done to the mulberries, which produce leaves every year; and it is thought that the beauty and fineneſs of the Spaniſh wool is in a great meaſure owing to the uſe of this kind of food. From theſe conſiderations M. Bourgeois infers, that even in countries where, from the nature of the climate, the ſcarcity of workmen and the high price of labour, or any other particular cauſes, ſilk-worms could not be raiſed to any advantage, the cultivation of mulberry trees ought not be neglected.—The fruit of the white mulberry has a ſweetiſh and very inſipid taſte. Birds, however, are very fond of it; and it is remarked that thoſe which have been fed with ſuch fruit afford excellent meat.

2. Morus Indica, the *Indian mulberry*, has

ovate oblong leaves, equal on both ſides, but unequally ſerrated. See N° 7.

3. Morus nigra, the common *black-fruited mulberry tree*, riſes with an upright large rough trunk, dividing into a branchy and very ſpreading head, riſing 20 feet high, or more. It has large heart-ſhaped rough leaves, and monœcious flowers, ſucceeded in the females by large ſucculent blackberries. There is a variety with jagged leaves and ſmaller fruit. Conſidered as fruit-trees, this ſpecies is the only proper ſort to cultivate here; the trees being not only the moſt plentiful bearers, but the fruit being larger and much finer flavoured than that of the Alba (N° 1.), which is the only other ſort that bears in this country. It is exceedingly grateful to the taſte, and is at the ſame time laxative and cooling. Like the other acid-ſweet fruits, it allays thirſt (as Dr Cullen obſerves), partly by refrigerating, and partly by exciting an excretion of mucus from the mouth and fauces; a ſimilar effect is alſo produced in the ſtomach, where, by correcting putreſcency, a powerful cauſe of thirſt is removed. A ſyrup is made from the berries, gathered before they are ripe, which, taken as a gargle, is excellent for allaying inflammations of the throat, and for cleanſing ulcers in the mouth. The *bark* of the *root*, which has an acrid bitter taſte, poſſeſſes a cathartic power, and has been ſucceſsfully uſed as a vermifuge, particularly in caſes of tænia; the doſe is half a dram of the powder, or a dram of the infuſion. The juice of the fruit is alſo employed to give a colour to certain liquors and confections. Some make from it an agreeable wine; others employ it for giving a high colour to red wine; which it likewiſe contributes to make ſweet.—Although this juice is not uſed in dyeing, it gives a red colour to the fingers and to linen, which is very difficult to remove. Verjuice, ſorrel, lemon, and green mulberries, remove ſpots of this kind from the hands; but with reſpect to linen, the beſt way is to wet the part which has been ſtained, and to dry it with the vapour of ſulphur; the vitriolic acid which eſcapes from this ſubſtance during combuſtion inſtantly takes off the ſtain.—The *wood* is yellow, tolerably hard, and may be applied to various uſes in turnery and carving: but to ſeparate the bark, which is rough, thick, thready, and fit for being made into ropes, it is proper to ſteep the wood in water.

4. Morus papyrifera, the *paper mulberry tree* of Japan, grows 20 or 30 feet high; having large palmated leaves, ſome trilobate, others quinquelobed; and monœcious flowers, ſucceeded by ſmall black fruit. This ſpecies has its name from the *paper* chiefly uſed by the Japaneſe being made of the bark of its branches. (See Paper.) The leaves alſo ſerve for food to the ſilk worm, and it is cultivated with ſucceſs in France. It thrives beſt in ſandy ſoils, grows faſter than the common mulberry, and at the ſame time is not injured by the cold. M. de la Bouviere affirms, that he procured a beautiful vegetable ſilk from the bark of the young branches of this ſpecies, which he cut while the tree was in ſap, and afterwards beat and ſteeped. The women of Louiſiana procure the ſame from the ſhoots which iſſue from the ſtock of the mulberry, and which are 4 or 5 feet high. After taking off the bark, they dry it in the ſun, and then beat it, that the external part may fall off; and the internal part, which is fine bark, remains entire. This is again beaten, to make it ſtill finer; after which they bleach it with dew. It is then ſpun, and various fabrics are made from it, ſuch as nets and fringes: they even ſometimes weave it and make it into cloth.—The fineſt ſort of cloth among the inhabitants of Otaheite, and others of the South Sea Iſlands, is made of the bark of this tree. See Bark, § 3.

5. Morus rubra, the *red Virginia mulberry tree*, grows 30 feet high; is garniſhed with very large, heart-ſhaped, rough leaves, hairy underneath; and has monœcious flowers, ſucceeded by large reddiſh berries. This and the laſt ſpecies, as well as the Alba (N° 1.), are here chiefly employed to form variety in our ornamental plantations, though abroad they are adapted to much more uſeful purpoſes.

6. Morus Tartarica, *the Tartarian mulberry*, has ovate oblong leaves, equal on both ſides, and equally ſerrated. It abounds on the banks of the Wolga and the Tanais.

7. Morus Tinctoria, dyer's mulberry, or fustic, has oblong leaves more extended on one ſide at the baſe, with axillary thorns. It is a native of Braſil and Jamaica. This is a fine timber-tree, and a principal ingredient in moſt of our yellow dyes, for which it is chiefly imported into Europe. The berries are ſweet and wholeſome, but not much uſed, except by the winged tribe, by whoſe care it is chiefly planted. This and the laſt ſpecies, and the Indica (ſee N° 2.), are tender plants in this country; but the other 4 are hardy, and ſucceed in any common ſoil and ſituation. The leaves are generally late before they come out, the buds ſeldom beginning to open till the middle, or towards the end of May, according to the ſeaſon; and when theſe trees begin to expand their foliage, it is a good ſign of fine warm ſettled weather; the white mulberry, however, is generally forwarder in leafing than the black. The flowers and fruit come out ſoon after the leaves; the males in amentums, and the females in ſmall roundiſh heads; neither of which are very conſpicuous, nor poſſeſs any beauty, but for obſervation. The female or fruitful flowers always riſe on the extremity of the young ſhoots, or ſhort ſpurs; and with this ſingularity, that the calyxes of the flowers become the fruit, which is of the berry kind, and compoſed of many tuberances, each of them furniſhing one ſeed. The fruit matures here gradually from about the 15th of Auguſt to the 15th Sept. In dry warm ſeaſons they ripen in great perfection; but in very wet weather, they ripen indifferently, and prove devoid of flavour.

MORZEGORSKOI, a town of Ruſſia, on the Dwina; 100 miles SE. of Archangel.

MOSA, a town of Arabia, 25 miles NE. of Mocha.

MOSACH, a river of Germany, in Bavaria.

(I. 1.) **MOSAIC**, *adj.* inſtituted by Moſes.

(2.) Mosaic Law, or the Law of Moses, the moſt ancient ſyſtem of law, that we know of in the world. It is of three kinds; the moral law, the ceremonial law, and the judicial law. The different manner in which each of theſe was delivered may perhaps ſuggeſt a right idea of their different natures. The moral law, or ten commandments, for inſtance, was delivered on the top of the mountain, in the face of the world, as being of univerſal influence, and obligatory on all mankind. The ceremonial was received by Moſes in private in the tabernacle, as being of peculiar concern, belonging to the Jews only, and deſtined to ceaſe when the tabernacle was down, and the vail of the temple rent. As to the judicial law, it was neither ſo publicly nor ſo audibly given as the moral law, nor yet ſo privately as the ceremonial; this kind of law being of an indifferent nature, to be obſerved or not obſerved, as its rites ſuit with the place and government under which we live. The five books of Moſes, called the PENTATEUCH, are frequently ſtyled, by way of emphaſis, *the Law*. This was held by the Jews in ſuch veneration, that they would not allow it to be laid upon the bed of any ſick perſon, leſt it ſhould be polluted by touching the dead.

(3.) MOSAIC LAW, HARMONY OF THE, WITH REFERENCES TO THOSE PARTS OF THE PENTATEUCH WHERE THE RESPECTIVE LAWS OCCUR. CLASS I. The Moral Law written on the two Tables, containing the Ten Commandments. Exod. xx. 3—17. Deut. v. 7—21.—The ſum of both tables; Lev. xix. 18. Deut. vi. 5.—CLASS II. The Ceremonial Law may be reduced to the following heads, viz. Of the holy place, Ex. 20. Lev. 17. Deut. 12.—Of the matter and ſtructure of the tabernacle, Ex. 25. 26. 27. 35.—Of the inſtruments for it, viz. The laver of braſs, Ex. 30.—The altar of burnt offering, Ex. 27.—The altar of incenſe, Ex. 30.—The candleſtick of pure gold, Ex. 25.—The table of ſhew-bread, Ex. 25. 26.—Of the prieſts and their veſtments, Ex. 28.—Of the chooſing of the Levites, Num. 18. 3. 8.—Of the prieſt's office in general, Num. 3. 18.—Of their office in teaching, Lev. 19. 10. Deut. 18. 12. 17. 31.—Of their office in bleſſing, Num. 6.—Of their office in offering; which function largely ſpreading itſelf, is divided into theſe heads, viz. What the ſacrifice ought to be, Lev. 22. Deut. 15. 17.—Of the continual fire, Lev. 6.—Of the manner of the burnt offerings, Lev. 6. 7.—Of the manner of the peace offerings, Lev. 3. 7.—Of the manner of the ſacrifices, according to their ſeveral kinds, viz. For ſin committed through ignorance of the law, Lev. 4. Num. 5.—Through ignorance of the fact, Lev. 5. 7.—Wittingly, yet not through impiety, Lev. 6. Num. 5.—The ſpecial law of ſacrifices for ſin, Lev. 6. 7.—Of things belonging to the ſacrifices, Lev. 2. 6. 7. Num. 4. 5.—Of the ſhew-bread, Lev. 24.—Of the lamps, Ex. 27. Lev. 24. Num. 8.—Of the ſweet incenſe, Ex. 30.—Of the conſecration of the high prieſts and other prieſts, Ex. 29. 30. Lev. 6. 8.—Of the conſecration and office of the Levites, Num. 8.—Of the dwelling of the Levites, Num. 53.—Of the anointing the altar, and all the inſtruments of the tabernacle, Ex. 29. 30.—Of the continual daily ſacrifices, Ex. 29. Num. 28.—Of the continual ſabbath-day's ſacrifice, Num. 28.—Of the ſolemn ſacrifice for feaſt-days, which were diverſe, and had peculiar rites, diſtinguiſhed into theſe, viz. Of trumpets, Num. 10.—Of beginning of months, Num. 28.—Of the three moſt ſolemn feaſts in general, Ex. 23. 34. Lev. 23. Deut. 16.—Of the feaſt of the paſſover, Ex. 12. 13. 25. 34. Lev. 23. Num. 9. 28. Deut. 16.—Of pentecoſt, Ex. 23. 24. Lev. 23. Num. 28. Deut. 16.—Of tabernacles, Ex. 23. 34. Lev. 23. Num. 29. Deut. 16.—Of blowing the trumpets, Lev. 23. Num. 29.—Of expiation, Ex. 30. Lev. 16. 23. Num. 29.—Of the firſt fruits, Ex. 22. 23. 34. Lev. 2. Num. 15. Deut. 26.—Of tythes, Lev. 21. Num. 18. Deut. 12. 14. 26.—Of fruits growing and not eaten of, Lev. 19.—Of the firſt born, Ex. 13. 22. 34. Deut. 15.—Of the ſabbatical year, Ex. 23. Lev. 25.—Of the year of jubilee, Lev. 25.—Of vows in general, Lev. 27. Num. 30. Deut. 13.—Of thoſe who ought not to make vows, Num. 30.—Of things not to be vowed, Lev. 27. Deut. 23.—Of redemption of vows, Lev. 27.—Of the vows of the Nazarites, Num. 6.—Of the laws proper for the prieſts, viz. Of pollutions, Lev. 22.—Of the high-prieſt's mourning, Lev. 21.—Of his marriage, Lev. 21.—Of the mourning of the ordinary prieſts, Lev. 21.—Of their marriage, Lev. 21.—Of their prohibition from wine, &c. Lev. 10.—Of ſanctified meats, Lev. 6. 17. 19. 20. Num. 5. 18. Deut. 12. 15. 18.—Of the office of the Levites, viz. Teaching, Deut. 17. 27. 31.—Offering, Num. 3. 4. 18. Deut. 10.—Other promiſcuous ceremonial laws, viz. Of uncleanneſs in general, Lev. 15. 19. Num. 5.—Of uncleanneſs in meats, viz. Of blood, Gen. 9. Ex. 23. Lev. 7. 17. 19. 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(II. i.) * **Mosaick.** *adj.* [*moſaique*, Fr. ſuppoſed corrupted from *muſæus*, Latin.] *Moſaick* is a kind of painting in ſmall pebbles, cockles, and ſhells of ſundry colours; and of late days likewiſe with pieces of glaſs figured at pleaſure; an ornament, in truth, of much beauty, and long life, but of moſt uſe in pavements and floorings. *Wotton's Ar.*

Each beauteous flow'r,
Iris all hues, roſes, and jeſſamin,
Rear'd high their flouriſh'd heads between, and wrought
Moſaick. *Milton's Par. Loſt.*

—The moſt remarkable remnant of it is a very beautiful *moſaick* pavement, the fineſt I have ever ſeen in marble. *Addiſon on Italy.*

(ii.) **Mosaic work** is an aſſemblage of little pieces of glaſs, marble, precious ſtones, &c. of various colours, cut ſquare, and cemented on a ground of ſtucco, in ſuch a manner as to imitate the colours and gradations of painting. The critics are divided as to the origin and reaſon of the name. Some derive it from *moſuicum*, a corruption of *muſuicum*, as that is of *muſivum*, as it was called among the Romans. Scaliger derives it from the Greek μυσα, and imagines the name was given to this ſort of works as being very fine and ingenious. Nebricenſis is of opinion it was ſo called, becauſe *ex illis picturis ornabantur muſea.*

(iii.) **Mosaic work of glass, method of performing.** Provide little pieces of glaſs, of as many different colours and ſizes as poſſible. To apply theſe ſeveral pieces, and out of them to form a picture, firſt procure a cartoon or deſign to be drawn; this is transferred to the ground or plaſter by calking, as in painting in freſco. See Fresco. As this plaſter is to be laid thick on the wall, and therefore will continue freſh and ſoft a conſiderable time, ſo there may be enough prepared at once to ſerve for as much work as will take up 3 or 4 days. This plaſter is compoſed of lime made of hard ſtone, with brick-duſt very fine, gum tragacanth, and whites of eggs: when this plaſter has been thus prepared and laid on the wall, and made the deſign of what is to be repreſented, they take out the little pieces of glaſs with a pair of plyers, and range them one after another, ſtill keeping ſtrictly to the light, ſhadow, different teints, and colours, repreſented in the deſign before; preſſing or flatting them down with a ruler, which ſerves both to ſink them within the ground and to render the ſurface even. Thus, in a long time, and with a great deal of labour, they finiſh the work, which is ſtill the more beautiful, as the pieces of glaſs are more uniform, and ranged at an even height. Some of theſe pieces of moſaic work are performed with that exactneſs, that they appear as ſmooth as a table of marble, and as finiſhed and maſterly as a painting in freſco; with this advantage, that they have a fine luſtre, and will laſt for ages. The fineſt works of this kind that have remained till our time, and by which the moderns have retrieved the art, which was in a manner loſt, are thoſe in the church of St Agnes, formerly the temple of Bacchus, at Rome; and ſome at Piſa, Florence, and other cities of Italy. The moſt eſteemed among the works of the moderns are thoſe of Joſeph Pine and the Chevalier Lanfranc, in the church of St Peter at Rome: there are alſo very good ones at Venice.

(iv.) **Mosaic work of gypsum, method of performing.** Of this ſtone calcined in a kiln, beaten in a mortar, and ſifted, the French workmen made a ſort of artificial marbles, imitating precious ſtones; and of theſe they compoſe a kind of moſaic work, which does not come far ſhort either of the durableneſs or the vivacity of the natural ſtones; and which beſides has this advantage, that it admits of continued pieces or paintings of entire compartiments without any viſible joining. Some make the ground of plaſter of Paris, others of free-ſtone. If it be of plaſter of Paris, they ſpread it in a wooden frame, of the length and breadth of the work intended, and in thickneſs about an inch and a half. This frame is ſo contrived, that the tenons being only joined to the mortiſes by the ſingle pins, they may be taken aſunder, and the frame be diſmounted when the plaſter is dry. The frame is covered on one ſide with a ſtrong linen-cloth, nailed all round; which being placed horizontally with the linen at the bottom, is filled with plaſter paſſed through a wide ſieve. When the plaſter is half dry, the frame is ſet up perpendicularly, and left till it is quite dry; then it is taken out, by taking the frame to pieces. In this moſaic, the ground is the moſt important part. Now in order to the preparation of this ſifted gypſum, which is to be applied on this ground, it is diſſolved, and boiled in the beſt Engliſh glue, and mixed with the colour that it is to be of; then the whole is worked up together into the uſual conſiſtence of plaſter, and then is taken and ſpread on the ground 5 or 6 inches thick. If the work be ſuch, as that mouldings are required, they are formed with gouges and other inſtruments. It is on this plaſter, thus coloured like marble or precious ſtone, and which is to ſerve as a ground to a work, either of lapis, agate, alabaſter, or the like, that the deſign to be repreſented is drawn; having been firſt pounced or calked. To hollow or impreſs the deſign, they uſe the ſame inſtruments that ſculptors do; the ground whereon they are to work not being much leſs hard than the marble itſelf. The cavities being thus made in the ground, are filled with the ſame gypſum boiled in glue, only differently coloured, and thus are the different colours of the original repreſented. In order that the neceſſary colours and teints may be ready at hand, the quantities of the gypſum are tempered with the ſeveral colours in pots. After the deſign has been thus filled and rendered viſible, by half-poliſhing it with brick and ſoft ſtone, they go over it again, cutting ſuch places as are either to be weaker or more ſhadowed, and filling them with gypſum; which work they repeat till all the colours being added one after the other, repreſent the original to the life. When the work is finiſhed, they ſcour it with ſoft ſtone, ſand, and water; after that, with a pumice ſtone; and in the laſt place poliſh it with a wooden mullet and emery. Laſtly, they gave it a luſtre, by ſmearing it over with oil and rubbing it a long time with the palm of the hand, which gives it a luſtre no ways inferior to that of natural marble.

(v.) Mosaic work of marble, method of performing. The ground of moſaic works, wholly marble, is uſually a maſſive marble, either white or black. On this ground the deſign is cut with a chiſel, after it has been firſt calked. After it has been cut of a conſiderable depth, *i. e.* an inch or more, the cavities are filled up with marble of a proper colour, firſt faſhioned according to the deſign, and reduced to the thickneſs of the indentures with various inſtruments. To make the piece thus inſerted into the indentures cleave faſt, whoſe ſeveral colours are to imitate thoſe of the deſign, they uſe a ſtucco, compoſed of lime and marble duſt; or a kind of maſtic, which is prepared by each workman after a manner peculiar to himſelf. The figures being marked out the painter or ſculptor draws with a pencil the colours of the figures not determined by the ground, and in the ſame manner makes ſtrokes or hatchings in the place where ſhadows are to be: and after he has engraven with the chiſel all the ſtrokes thus drawn, he fills them up with a black maſtic, compoſed partly of Burgundy pitch poured on hot; taking off afterwards what is ſuperfluous with a piece of ſoft ſtone or brick, which, together with water and beaten cement, takes away the maſtic, poliſhes the marble, and renders the whole ſo even that one would imagine it only conſiſted of one piece. This kind of moſaic work is uſed in large works, as the pavements of churches, baſilics, and palaces, and in the veneering of their walls. It is ſeen in the pompous church of the invalids at Paris, and the fine chapel at Verſailles, with which ſome entire apartments of the palace are incruſtated.

(vi.) Mosaic work of precious stones method of performing. For this purpoſe other and finer inſtruments are required than thoſe uſed in marble; as drills, wheels, &c. uſed by lapidaries and engravers on ſtone. As none but the richeſt marbles and ſtones enter this work, to make them go the farther, they are ſawn into the thinneſt leaves imaginable, ſcarce exceeding half a line in thickneſs: the block to be ſawn is faſtened firmly with cords on the bench, and only raiſed a little on a piece of wood, one or two inches high. Two iron pins, which are on one ſide the block, and which ſerve to faſten it, are put into a vice contrived for the purpoſe; and with a kind of ſaw or bow, made of fine braſs wire, bent on a piece of ſpongy wood, together with emery ſteeped in water, the leaf is gradually faſhioned by following the ſtroke of the deſign, made on paper and glued on the piece. When there are pieces enough faſtened to form an entire flower, or ſome other part of the deſign, they are applied to the ground. The ground which ſupports this moſaic work is uſually of free ſtone. The matter with which the ſtones are joined together is a maſtic, or kind of ſtucco, laid very thin on the leaves as they are faſhioned; and this being done, the leaves are applied with plyers. If any contour, or ſide of a leaf, be not either ſquared or rounded ſufficiently, ſo as to fit the place exactly into which it is to be inſerted, when it is too large, it is to be brought down with a braſs file or raſp; and if it be too little, it is managed with a drill and other inſtruments uſed by lapidaries. This kind of moſaic work is only uſed in ſmall works, as ornaments for altar-pieces, tables for rich cabinets, precious ſtones being ſo very dear.

(vii.) Mosaic work of the feathers of birds, &c. In Clavigero's hiſtory of Mexico is deſcribed a curious kind of Moſaic work made by the ancient Mexicans of the moſt delicate and beautiful *feathers* of birds. They raiſed for this purpoſe various ſpecies of birds of fine plumage with which that country abounds, not only the palaces of the king, where there were all ſorts of animals, but likewiſe in private houſes; and at certain ſeaſons they carried off their feathers to make uſe of them on this kind of work, or to ſell them at market. They ſet a high value on the feathers of thoſe wonderful little birds which they call *Huitzitzilin* and the Spaniards *Picaflores*, on account of the ſmallneſs, the fineneſs, and the various colours of them. In theſe and other beautiful birds, nature ſupplied them with all the colours which art can produce, and alſo ſome which art cannot imitate. At the undertaking of every Moſaic work ſeveral artiſts aſſembled: After having agreed upon a deſign, and taking their meaſures and proportions, each artiſt charged himſelf with the execution of a certain part of the image, and exerted himſelf ſo diligently in it with ſuch patience and application, that he frequently ſpent a whole day in adjuſting a feather; firſt trying one, then another, viewing it ſometimes one way, then another, until he found one which gave his part that ideal perfection prepoſed to be attained. When the part which each artiſt undertook was done, they aſſembled again to form the entire image from them. If any part was accidentally deranged, it was wrought again until it was perfectly finiſhed. They laid hold of the feathers with ſmall pincers, that they might not do them the leaſt injury, and paſted them on the cloth with *tzaubtli*, or ſome other glutinous matter; then they united all the parts upon a little table, or a plate of copper, and flattened them ſoftly, until they left the ſurface of the image ſo equal and ſmooth that it appeared to be the work of a pencil. Theſe were the images ſo much celebrated by the Spaniards and other European nations. Whoever beheld them was at a loſs whether to praiſe moſt the life and beauty of the natural colours, or the dexterity of the artiſt and the ingenious diſpoſition of art. "Theſe images (ſays Acoſta) are deſervedly admired; for it is wonderful how it was poſſible, with the feathers of birds, to execute works ſo fine and ſo equal, that they appear the performance of the pencil; and what neither the pencil nor the colours in painting can effect, they have when viewed from a ſide, an appearance beautiful, ſo lively and animated. Some Indians, who are able artiſts, copy whatever is painted with a pencil ſo perfectly with plumage, that they rival the beſt painters of Spain." Theſe works of feathers were even ſo highly eſteemed by the Mexicans as to be valued more than gold. Cortes, Bernal Diaz, Gomara, Torquemada, and all the other hiſtorians who ſaw them, were at a loſs for expreſſions ſufficient to praiſe their perfection. Several works of this kind, our author ſays, are ſtill preſerved in the muſeums of Europe, and many in Mexico; but few, he apprehends, belong to the 16th century, and ſtill fewer, if any, are of thoſe made before the conqueſt. The Moſaic works alſo which the Mexicans made of broken ſhells were extremely curious: this art is ſtill practiſed in Guatimala.

(1.) **MOSAMBIQUE**, a kingdom of Africa, lying S. of Quiloa.

(2—4.) **Mosambique**, the capital of the above kingdom, is ſituated on an iſland, at the mouth of a river of the ſame name, in Lat. 15° S. The iſland is 30 miles in circumference, and very populous, though the air is ſaid to be very hot, and the ſoil in general dry, ſandy, and barren; yet they have moſt of the tropical fruits, with black cattle, hogs, and ſheep. There is a kind of fowls here, both the feathers and fleſh of which are black, inſomuch that, when they are boiled, the broth looks like ink; and yet their fleſh is very delicate and good food. The town of Moſambique is regularly fortified, and has a good harbour, defended by a citadel, with ſeveral churches and monaſteries. The Portugueſe ſhipping to and from India touch here for refreſhments. As the iſland abounds in cattle, the Portugueſe ſlaughter and ſalt up a great deal of beef, which they afterwards ſend to the Brazils, or ſell to the European ſhipping. They alſo barter European goods with the natives for gold, elephants teeth, and ſlaves. The gold is found near the ſurface of the earth, or in the ſands of rivers.

MOSBACH, a town of Bavaria.

MOSBURG, a town of Carinthia.

* (1.) **MOSCHATEL.** *n. ſ.* [*moſchatellina*, Lat.] A plant. *Miller.*

(2.) **Moschatel.** See Adoxa.

MOSCHION, a name common to four different authors, whoſe compoſitions, characters, and native places, are unknown. Some fragments of their writings remain, ſome few verſes, and a treatiſe *De mulierum affectibus.*

(I.) **MOSCHUS**, a Grecian poet of antiquity, uſually coupled with Bion. They were both contemporaries with Theocritus. In the time of the latter Grecians, all the ancient Idylliums were collected and attributed to Theocritus; but the claims of Moſchus and Bion have been admitted to ſome few little pieces. All that is known about them is collected from their own remains. Moſchus, by compoſing his delicate elegy on Bion, has given the beſt memorials of Bion's life. (See Bion, N° 1.) Moſchus and Theocritus have by ſome critics been ſuppoſed the ſame perſon; but there are irrefragable evidences againſt it: others will have him as well as Bion to have lived later than Theocritus, upon the authority of Suidas: while others again ſuppoſe him to have been the ſcholar of Bion, and probably his ſucceſſor in governing the poetic ſchool; which, from the elegy of Moſchus, does not ſeem unlikely. Their remains are to be found in all the editions of the *Poetæ Minores Græci.*

(II.) **Moschus**, in zoology; a genus of quadrupeds of the order of pecora, having no horns. There are 8 ſmall cutting teeth in the lower jaw; in the upper, no cutting or fore teeth; but two long tuſks, one on each ſide, projecting out of the mouth.

1. **Moschus Americanus**, or the *Braſilian muſk*, is of a reddiſh brown colour, with a black muzzle and white throat, and ſcarcely ſo large as a roe-buck. The fur is ſoft and ſhort; the colour of the head and upper part of the neck is dark brown; the lower part of the neck and throat are white; the body and limbs are reddiſh brown; the hind legs are longer than the fore. Theſe animals, which inhabit Guiana and Braſil, are exceedingly timid, active, and ſwift. Numbers are often ſeen ſwimming the rivers, and are then eaſily taken. The Indians hunt them, and their fleſh is eſteemed very delicate. The French of Guiana call them *biches* or does, becauſe, notwithſtanding their likeneſs to deer, both ſexes are without horns. Gmelin ſuſpects this animal may only be a fawn of the American roe.

2. **Moschus Javanicus**, the *Javan muſk*, is of a ferruginous colour on the upper parts of the body, and white all along the under; the tail is long and hairy, white below and at the tip; its legs are ſimilar to thoſe of the pigmy muſk, and furniſhed with very ſmall ſpurious hoofs. This and the memmina (N° 4.) ſeem only varieties of the pigmæus, N° 6.

3. **Moschus Indicus**, the *Indian muſk*, has ſhort hair of a tawny colour on the upper, and whitiſh on the under parts of the body; the tail is ſhort, and the feet have ſpurious hoofs. They inhabit India; and are much of the ſame ſize with the Moschiferus (N° 5.), but the tail is longer and more perceptible; the legs are very ſlender; and the head reſembles that of a horſe, with erect oblong ears.

4. **Moschus meminna**, or the *Ceylon Chevrotin*, is 17 inches long from the noſe to the rump, and of a cinereous olive colour; the throat, breaſt, and belly, are white; the ſides and haunches ſpotted, and barred tranſverſely with white; and the ears are large and open: the tail is very ſhort; and the feet have no ſpurious hoofs. They inhabit Ceylon and Java. See *Pl.* CCXXIV, *fig.* 6.

5. **Moschus Moschiferus**, the **Thibet musk**, has a bag or tumour on the belly near the navel, and a very ſhort tail almoſt hid in the fur. The length of the male is about 3 feet 3 inches from the noſe to the origin of the tail, and about 2 feet 3 inches high at the ſhoulder; the female is leſs than the male, has a ſharper noſe, has no tuſks nor muſk-bag, and is provided with two teats. The head reſembles that of the roe: the fur is coarſe like that of the animals of the deer kind; but ſofter, very ſmooth, erect, plentiful, thick, and long: the colour varies according to the age of the animal and time of the year; but is chiefly blackiſh brown on the upper, and hoary, ſeldom white, on the under parts of the body; the hoofs are long, black, and much divided, and the ſpurious hoofs of the fore feet are very long: the ſcrotum is of a bright red colour, and the penis very ſmall. (See *Pl.* CCXXVII, *fig.* 4.) They inhabit the Aſiatic Alps, eſpecially the higheſt rocky mountains from the Altaic chain to that which divides Thibet from India; likewiſe in China and Tonquin, and in eaſtern Siberia; and about lake Baikal, and the rivers Jeniſea and Argun. They avoid mankind, dwelling ſolitarily in the moſt precipitous places of the mountains among rocks in the ſmall narrow valleys ſurrounded by theſe ſnowy hills, and the pine foreſts which grow in their interſtices. They are very gentle and timid animals, except in rutting time, when the males fight violently with their tuſks for the females; they are exceedingly active in leaping, running, climbing, and ſwimming, and very difficultly tamed; the fleſh is eatable, and that of the younger animals delicate. The chace of them is a trade equally difficult and hazardous; if purſued, they ſeek the higheſt tops of the ſnowy peaks, inacceſſible to men or dogs. They take amazing leaps over the tremendous chaſms of their alps, and from rock to rock; treading ſo lightly on the ſnow with their true and falſe hoofs extended, as ſcarcely to leave a mark; while the dogs which purſue them ſink in, and are forced to deſiſt from the chaſe. They are ſo fond of liberty as never to live long in captivity. They are moſtly taken in ſnares, or ſhot by croſs-bows placed in their tracks, with a ſtring from the trigger for them to tread on and diſcharge. The Tunguſi ſhoot them with bows and arrows. The ſkins are uſed for bonnets and winter dreſſes. The Ruſſians often ſcrape off the hair, and have a way of preparing them for ſummer clothing, ſo as to become as ſoft and ſhining as ſilk. The noted drug the **musk** is produced from the male. The bag or follicle that contains it is ſituated near the prepuce; and is of a ſomewhat oval figure, flat on one ſide and rounded on the other, having a ſmall open orifice. In young animals this bag is empty; but in adults it is filled with a clotted, oily, friable matter, of a dark brown colour: this is the true muſk, of which each bag contains from a dram and a half to two drams. The beſt comes from Thibet; that which is produced in Siberia having ſomewhat of the flavour of caſtor.

6. **Moschus Pigmæus**, the *Pigmy muſk* is marked as to colour like the **Indicus**, (N° 3.) but has no ſpurious hoofs.—The body and head meaſure only 9½ inches in length; the tail is about an inch long; and the legs are ſmaller than a man's finger. They inhabit the Eaſt Indies and ſeveral Indian iſlands; and are called *kant-chel* by the Malayes, and *poet-jang* by the inhabitants of Java. The natives catch them in great numbers, carry them in cages to market, and ſell them for 2½d. a-piece. See *Pl.* CCXXIV, *fig.* 7.

(1.) **MOSCOW**, the chief province of the empire of Ruſſia, deriving its name from the river Muſcova, or Moſkva, on which the capital is ſituated. It was from this duchy that the czars of old took the title of *dukes of Muſcovy*. The province is bounded on the N. by the duchies of Twere, Roſtow, Suſdal, and Wolodimer; on the S. by Rezan, from which it is ſeparated by the Occa; on the E. by the principality of Cachine, and the Occa parting it from Niſi-novogord; and on the W. by the duchies of Rzeva, Biela, and Smolenſko. It extends about 200 miles in length, and about 100 in breadth; and is watered by the Moſkva, Occa, and Cleſma, which fall into the Wolga; yet the ſoil is not very fertile. The air, however, though ſharp, is ſalubrious; and this conſideration, with the advantage of its being ſituated in the midſt of the beſt provinces in the empire, induced the czars to make it their chief reſidence. In the W. part of Moſcow is a large foreſt, whence flows the celebrated river Nieper or Boriſthenes. See **Boristhenes**, and **Dnieper**.

(2.) **Moscow**, the capital of the above province, and till the beginning of the 18th century the metropolis of all Ruſſia, is ſituated in a ſpacious plain on the banks of the river Muſcova. The Ruſſian antiquaries differ conſiderably in their opinions concerning the firſt foundation of Moſcow; the following, Mr Coxe ſays, is eſteemed the moſt probable account: Kiof was the metropolis, when George ſon of Vladimir Monomaka aſcended, in 1154, the Ruſſian throne. That monarch, being inſulted in a progreſs through his dominions by a rich and powerful nobleman, named Stephen Kutchko, put him to death, and confiſcated his domains, which conſiſted of the lands now occupied by Moſcow and the adjacent territory. Pleaſed with the ſituation of the ground, lying at the conflux of the Moſkva and Neglina, he laid the foundation of a new town, which he called *Moſkva* from the river of that name. Upon the demiſe of George, his ſon Andrew transferred the ſeat of empire from Kiof to Vladimir; but it fell into ſuch decay, under his immediate ſucceſſors, that when Daniel, the ſon of Alexander Nevſki, received, in the diviſion of the empire, the duchy of Muſcovy as his portion, and fixed his reſidence upon the conflux of the Moſkva and Neglina, he may be ſaid to have founded the town anew. The ſpot now occupied by the

Kremlin was then overſpread with a thick wood and a moraſs, in the midſt whereof was a ſmall iſland containing a ſingle wooden hut. Upon this part Daniel conſtructed churches and monaſteries, and various buildings, and encloſed it with wooden fortifications: he firſt aſſumed the title of duke of Moſcow; and was ſo attached to this ſituation, that, in 1304, when he ſucceeded his brother Andrew Alexandrovich in the great duchy of Vladimir, he did not remove his court to Vladimir, but continued his reſidence at Moſcow, which then became the capital of the Ruſſian dominions. His ſucceſſors followed his example; among whom his ſon John conſiderably enlarged the new metropolis, and in 1367 his grandſon Demetrius ſurrounded the Kremlin with a brick wall. Theſe new fortifications, however, were not ſtrong enough to prevent Tamerlane, in 1382, from taking the town, after a ſhort ſiege. Being ſoon evacuated by that deſultory conqueror, it again came into the poſſeſſion of the Ruſſians; but was frequently invaded and occupied by the Tartars, who in the 14th and 15th centuries over-ran the greateſt part of Ruſſia, and who even maintained a garriſon at Moſcow, until they were finally expelled by John Baſiliowitz I. To him Moſcow is indebted for its principal ſplendor, and under him it became the principal and moſt conſiderable city of the Ruſſian empire. Moſcow continued the metropolis of Ruſſia until the ſeat of the empire was transferred to Peterſburg, by Peter the Great. Notwithſtanding the predilection which Peter conceived for Peterſburg, in which all his ſucceſſors, except Peter II. have fixed their reſidence, Moſcow, according to Mr Coxe, is ſtill the moſt populous city of the empire. Here the chief nobles, who do not belong to the court, reſide, and ſupport a large number of retainers; they love to gratify their taſte for a rude and more expenſive magnificence in the ancient ſtyle of feudal grandeur; and are not, as at Peterſburg, eclipſed by the ſuperior ſplendor of the court. Moſcow is the largeſt town in Europe; its circumference within the rampart, which encloſes the ſuburbs, being exactly 39 verſts, or 26 miles; but it is built in ſo ſtraggling and disjointed a manner, that its population in no degree correſponds to its extent. Some Ruſſian authors ſtate its inhabitants at 500,000 ſouls, a number evidently exaggerated. According to a late computation, which, Mr Coxe ſays, may be depended upon, Moſcow contains within the ramparts 250,000 ſouls, and in the adjacent villages 50,000. The ſtreets of Moſcow are in general exceedingly long and broad: ſome are paved; others, particularly thoſe in the ſuburbs, are formed with trunks of trees, or are boarded with planks like the floor of a room; wretched hovels are blended with large palaces; cottages of one ſtory ſtand next to the moſt ſuperb and ſtately manſions. Many brick ſtructures are covered with wooden tops; ſome of the wooden houſes are painted; others have iron doors and roofs. Numerous churches appear in every quarter, built in a peculiar ſtyle of architecture; ſome with domes of copper, others of tin, gilt or painted green, and many roofed with wood. In a word, ſome parts of this vaſt city have the look of a ſequeſtered deſart, others of a populous city; ſome of a contemptible village, others of a great capital. Moſcow is built upon the Aſiatic model, but is gradually becoming more and more European, and exhibiting, in its preſent ſtate, a motley mixture of diſcordant architecture. It is diſtributed into the following diviſions: 1. The *Kremlin* ſtands in the central and higheſt part of the city; is of a triangular form, and about two miles in circumference; and is ſurrounded by high walls of ſtone and brick, conſtructed in 1491, under the reign of John Baſiliowitz I. It contains the ancient palace of the czars, ſeveral churches, two convents, the patriarchal palace, the arſenal, now in ruins, and one private houſe, which belonged to Boris Godunof before he was raiſed to the throne: 2. *Khitaigorod*, or the *Chineſe town*, is incloſed on one ſide by that wall of the *Kremlin* which runs from the Moſkva to the Neglina; and on the other ſide by a brick wall of inferior height. It is much larger than the Kremlin, and contains the univerſity, the printing-houſe, and many other public buildings, and all the tradeſmens ſhops. The edifices are moſtly ſtuccoed or white waſhed, and it is the only ſtreet in Moſcow in which the houſes ſtand cloſe to one another without intervals: 3. The *Bielgorod* or *White Town*, which runs quite round the two preceding diviſions, is ſuppoſed to derive its name from a white wall with which it was formerly encloſed, and of which ſome remains are ſtill viſible: 4. *Semlainogorod*, which environs all the three other quarters, takes it denomination from a circular rampart of earth with which it is encompaſſed. Theſe two laſt diviſions exhibit a groteſque groupe of churches, convents, palaces, brick, and wooden houſes, and mean hovels, not ſuperior to peaſants cottages. 5. The *Sloboda*, or ſuburbs, form a vaſt exterior circle round all the parts already deſcribed, and are inveſted with a low rampart and ditch. Theſe contain, beſides buildings of all kinds, corn fields, much open paſture, and ſome ſmall lakes, which give riſe to the Neglina. The places of divine worſhip at Moſcow are exceedingly numerous: including chapels, they amount to above 1000: there are 484 public churches, of which 199 are of brick, and the others of wood; the former are commonly ſtuccoed or white-waſhed, the latter painted of a red colour. The moſt ancient churches of Moſcow are generally ſquare buildings, with a cupola and four ſmall domes, ſome whereof are of copper or iron gilt; others of tin, either plain or painted green. Theſe cupolas and domes are for the moſt part ornamented with croſſes entwined with thin chains or wires. The church of the Holy Trinity, ſometimes called the church of Jeruſalem, which ſtands in the Khitaigorod, cloſe to the gate leading into the Kremlin, has a kind of high ſteeple, and 9 or 10 domes: it was built in the reign of John Baſiliowitz II. The inſide of the churches is moſtly compoſed of three parts: that called by the Greeks *προναος*, by the Ruſſians *trapeza*; the body; and the ſanctuary or ſhrine. Over the door of each church is the portrait of the ſaint to whom it is dedicated, to which the people pay their homage as they paſs, by taking off their hats, croſſing themſelves, and occaſionally touching the ground with their heads. The bells, which form no inconſiderable part of public worſhip in this country, as the length or ſhortneſs of their peals aſcertains the greater or leſſer ſanctity of the day, are hung in belfreys detached from the church: they do not ſwing like our bells, but are fixed immoveably to the beams, and are rung by a rope tied to the clapper and pulled ſideways. Some of theſe bells are of a ſtupendous ſize: one in the tower of St John's church weighs 3551 Ruſſian poods; or 127,836 Engliſh pounds. It has always been eſteemed a meritorious act of religion to preſent a church with bells; and the piety of the donor has been meaſured by their magnitude. According to this mode of eſtimation, Boris Godunof, who gave a bell of 288,000 lb. to the cathedral of Moſcow, was the moſt pious ſovereign of Ruſſia, until he was ſurpaſſed by the empreſs Anne, at whoſe expenſe a bell was caſt weighing 432,000 lb. and which exceeded in bigneſs every bell in the known world. The height of this enormous bell is 19 feet, its circumference at the bottom 21 yards 11 inches, its greateſt thickneſs 23 inches. The beam to which this vaſt machine was faſtened being accidentally burnt, the bell fell down, and a piece was broken off towards the bottom, which left an aperture large enough to admit two perſons a-breaſt without ſtooping. The palace of the ancient czars ſtands at the extremity of the Kremlin. Part of this palace remains in the ſame ſtate in which it was built under John Baſiliowitz I. The remainder has been ſucceſſively added at different intervals, without any plan, and in various ſtyles of architecture, which has produced a motley pile of building, remarkable for nothing but the incongruity of the ſeveral ſtructures. The top is thickly ſet with numerous little gilded ſpires and globes; and a large portion of the front is decorated with the arms of all the provinces of the Ruſſian empire. The apartments are in general exceeding ſmall, excepting one room called the *council-chamber*, in which the ancient czars uſed to give audience to foreign ambaſſadors, and which has been repeatedly deſcribed by ſeveral Engliſh travellers who viſited Moſcow before the imperial reſidence was transferred to Peterſburgh. The room is large and vaulted, and has in the centre an enormous pillar of ſtone which ſupports the cieling. In this palace Peter the Great was born in 1672. In the treaſury are depoſited the crown, jewels, and royal robes, uſed at the coronation of the ſovereign, beſides ſeveral curioſities relative to the hiſtory of the country. Of the great number of churches in this city, that of St Michael and that of the Aſſumption of the Virgin Mary are moſt remarkable; the one for being the place where the ſovereigns of Ruſſia were formerly interred, and the other where they are crowned. Theſe edifices, which are in the Kremlin, are both in the ſame ſtyle of architecture; and their exterior form, though modelled according to the ancient ſtyle of the country, is not inelegant. In the cathedral of St Michael, which contains the tombs of the Ruſſian ſovereigns, the bodies are not, as with us, depoſited in vaults, or beneath the pavement, but are entombed in raiſed ſepulchres, moſtly of brick, in the ſhape of a coffin, and about two feet in height. When Mr Coxe viſited the cathedral, the moſt ancient were covered with palls of red cloth, others of red velvet, and that of Peter II. with gold tiſſue, bordered with ſilver fringe and ermine. Each tomb has at its lower extremity a ſmall ſilver plate, upon which is engraved the name of the deceaſed ſovereign, and the era of his death. The cathedral of the Aſſumption of the Virgin Mary, which has long been appropriated to the coronation of the Ruſſian ſovereigns, is the moſt ſplendid and magnificent in Moſcow. The ſcreen is in many parts covered with plates of ſolid ſilver and gold richly worked. From the centre of the roof hangs an enormous chandelier of maſſy ſilver, weighing 2940 pounds: it was made in England, and was a preſent from Moroſof, prime miniſter and favourite of Alexis Michaelovitch. The ſacred utenſils and epiſcopal veſtments are extraordinarily rich; but the taſte of the workmanſhip is in general rude, and not equal to the materials. Many of the paintings which cover the inſide walls are of a coloſſal ſize: ſome are very ancient, and were executed ſo early as in the end of the 15th century. It contains alſo a head of the virgin, ſaid to have been delineated by St Luke, and greatly celebrated in this country for its miracles. Its face is almoſt black; its head is ornamented with a glory of precious ſtones; and its hands and body are gilded, which gives it a moſt groteſque appearance. It is placed in the ſcreen, and encloſed within a large ſilver covering, which is only taken off on great feſtivals, or for the curioſity of ſtrangers. In this cathedral are depoſited the remains of the Ruſſian patriarchs. The place in the Khitaigorod, where the public archives are depoſited, is a ſtrong brick building, containing ſeveral vaulted apartments with iron floors. Theſe archives, conſiſting of a numerous collection of ſtate papers, were crowded into boxes, and thrown aſide like common lumber, until Catherine II. ordered them to be reviſed and arranged. In conformity to this mandate, Mr Muller has diſpoſed them in chronological order with ſuch perfect regularity, that any ſingle document may be inſpected with little trouble. They are encloſed in ſeparate cabinets with glaſs doors: thoſe relative to Ruſſia are all claſſed according to the ſeveral provinces which they concern; and over each cabinet is inſcribed the name of the province to which it is appropriated. In the ſame manner the MSS. relative to foreign kingdoms are placed in ſeparate diviſions, under the reſpective titles of Poland, Sweden, England, France, Germany, &c. The univerſity of Moſcow, alſo ſituated in the Khitaigorod, was founded, at the inſtance of Count Shuvalof, by the empreſs Elizabeth, for 600 ſtudents, who are clothed, boarded, and inſtructed, at the imperial expenſe. There are alſo two gymnaſia or ſeminaries for the education of youth, endowed by Elizabeth; in which are taught, by 23 profeſſors, divinity, claſſics, philoſophy, the Greek, Latin, Ruſſian, German, French, Italian, and Tartar languages; hiſtory, geography, mathematics, architecture, fortification, artillery, algebra, drawing and painting, muſic, fencing, dancing, reading, and writing. Moſcow is the centre of the inland commerce of Ruſſia, and connects the trade between Europe and Siberia. The only navigation to this city is formed by the Moſkva, by its communication with the Volga. But as the Moſkva is only navigable in ſpring upon the melting of the ſnows, the principal merchandiſe is conveyed to and from Moſcow upon ſledges in winter. The retail commerce is carried on in the Khitaigorod; where, according to a cuſtom common in Ruſſia, all the ſhops are collected together in one ſpot. The place is like a kind of fair, conſiſting of many rows of low brick buildings; the intervals between them reſembling alleys. Theſe ſhops or booths occupy a conſiderable ſpace: they do not make part of the houſes inhabited by the tradeſmen, but are quite detached from their dwellings, which for the moſt part are at ſome diſtance, in another quarter of the town. The tradeſman comes to his ſhop in the morning, remains there all day, and returns home to his family in the afternoon. Every trade has its ſeparate department; and they who ſell the ſame goods have booths adjoining to each other. Furs and ſkins form the moſt conſiderable article of commerce in Moſcow; and the ſhops which vend thoſe commodities occupy ſeveral ſtreets. Among the curioſities of Moſcow, the market for the ſale of houſes is not the leaſt remarkable. It is held in a large open ſpace in one of the ſuburbs; and exhibits a great variety of ready-made houſes, thickly ſtrewed upon the ground. The purchaſer who wants a dwelling repairs to this ſpot, mentions the number of rooms he requires, examines the different timbers, which are regularly numbered, and bargains for that which ſuits him. The houſe is ſometimes paid for on the ſpot, and taken away by the purchaſer; or ſometimes the vender contracts to tranſport and erect it on the place where it is deſigned to ſtand. It may appear incredible to aſſert, that a dwelling may be thus bought, removed, raiſed, and inhabited, within the ſpace of a week; but we may conceive it practicable, by conſidering that theſe ready-made houſes are in general merely collections of trunks of trees mortoiſed at each extremity into one another, ſo that nothing more is required than the labour of tranſporting and adjuſting them. But this ſummary mode of building is not always peculiar to the meaner hovels; as wooden ſtructures of very large dimenſions and handſome appearance are occaſionally formed in Ruſſia with an expedition almoſt inconceivable to the inhabitants of other countries. A remarkable inſtance of this diſpatch was diſplayed the laſt time the empreſs came to Moſcow. Her majeſty propoſed to reſide in the manſion of prince Galitzin, which is eſteemed the completeſt edifice in this city; but as it was not ſufficiently ſpacious for her reception, a temporary addition of wood, larger than the original houſe, and containing a magnificent ſuite of apartments, was begun and finiſhed within the ſpace of ſix weeks. This meteor-like fabric was ſo handſome and commodious, that the materials, which were taken down at her majeſty's departure, were to be re-conſtructed as a kind of imperial villa upon an eminence near the city. Mr Coxe mentions an admirable police in this city for preventing riots, or for ſtopping the concourſe of people in caſe of fires, which are very frequent and violent in thoſe parts, where the houſes are moſtly of wood, and the ſtreets are laid with timber. At the entrance of each ſtreet there is a chevaux de friſe gate, one end whereof turns upon a pivot, and the other rolls upon a wheel; near it is a ſentry-box, in which a man is occaſionally ſtationed. In times of riot or fire the centinel ſhuts the gate, and all paſſage is immediately ſtopped. Among the public inſtitutions of Moſcow, the moſt remarkable is the Foundling Hoſpital, endowed in 1764 by Catherine II. and ſupported by voluntary contributions, legacies, and other charitable gifts. To encourage donations, her majeſty granted to all benefactors ſome valuable privileges, and a certain degree of rank, in proportion to their liberality. Among the principal contributors deſerves to be mentioned a merchant named *Dimidof*, who expended in favonr of this charity above L.100,000. The hoſpital, which is ſituated in a very airy part of the town, upon a gentle aſcent near the Moſkva, is an immenſe pile of building of a quadrangular ſhape, part of which was only finiſhed when Mr Coxe was at Moſcow. It then contained 3000 foundlings; and, when completed, will admit 8000. The children are brought to the porter's lodge, and admitted without any recommendation. The rooms are lofty and large; the dormitories, which are ſeparate from the work rooms, are very airy, and the beds are not crowded: each foundling, even each infant, has a ſeparate bed; the bedſteads are of iron; the ſheets are changed every week, and the linen three times a week. Through the whole rooms the greateſt neatneſs prevails; even the nurſeries being uncommonly clean, and without any unwholeſome ſmells. No cradles are allowed, and rocking is forbidden. The infants are not ſwaddled, but looſely dreſſed. They are divided into ſeparate claſſes, according to their ages. They remain two years in the nurſery, when they are admitted into the loweſt claſs: the boys and girls continue together until they are 7 years of age, when they are ſeparated. They all learn to read, write, and caſt accounts. The boys are taught to knit; they occaſionally card hemp, flax, and wool, and work in the different manufactures. The girls learn to knit, net, and all kinds of needle-work; they ſpin and weave lace; they are employed in cookery, baking, and houſe-work of all ſorts. At the age of 14 the foundlings enter into the firſt claſs, when they have the liberty of chooſing any particular branch of trade; and for this purpoſe there are different ſpecies of manufactures eſtabliſhed in the hoſpital, of which the principal are embroidery, ſilk ſtockings, ribbands, lace, gloves, buttons, and cabinet work. A ſeparate room is appropriated to each trade. Some boys and girls are inſtructed in the French and German languages, and a few boys in the Latin; others learn muſic, drawing, and dancing. About the age of 20, the foundlings receive a ſum of money, and ſeveral other advantages, which enable them to follow their trade in any part of the empire; a very conſiderable privilege in Ruſſia, where the peaſants are ſlaves, and cannot leave their village without the permiſſion of their maſter.—Their victuals are of the moſt wholeſome and nouriſhing kinds. They riſe at ſix, dine at eleven, and ſup at ſix. The little children have bread at ſeven and four. When they are not employed in their neceſſary occupations, the utmoſt freedom is allowed, and they are encouraged to be as much in the air as poſſible.

(1.) **MOSELLE**, a department of France, comprehending part of the late province of Lorrain, and chiefly the ci-devant county of Meſſin. When firſt erected, this department was bounded on the N. by the late duchy of Luxemburg, NE. by the ci-devant electorate of Treves, E. by Naſſau-Saarbruck, and the late duchy of Deux-Ponts; SE. by the dep. of the Lower Rhine, and on the S. and W. by that of the Meuſe. But now all theſe countries are annexed to the French empire; ſo that its new boundaries on the N. and E. are the departments of Forets, Rhine and Moſelle, and Mont Tonnere. Metz is the capital.

(2.) **Moselle**, a river of Germany, now in the French empire, which riſes in the mountains of Vauge in the late province of Lorrain, and, running through the departments of the Voſges, Meurthe, Moſelle, Forets, and Rhine and Moſelle, falls into the Rhine at Coblentz.

(1.) **MOSES**, [משה, *Heb.* i. e. *drawn up*,] the ſon of Amram, and great-grandſon of Levi, was born in the year 1571 before Chriſt. Pharaoh king of Egypt, perceiving that the Hebrews were become a formidable nation, had iſſued an edict commanding all the male children to be put to death. Jochebed, the mother of Moſes, having, to avoid this cruel edict, concealed her ſon for three months, at length made an ark of bulruſhes, daubed it with pitch, laid the child in it, and expoſed him on the banks of the Nile. Thermuthis the king's daughter, walking by the river's ſide, perceived the floating cradle, commanded it to be brought to her, and, ſtruck with the beauty of the child, determined to preſerve his life. In three years afterwards ſhe adopted him for her ſon, called his name *Moſes*, and cauſed him to be inſtructed in all the learning of the Egyptians. But his father and mother, to whom he was reſtored by a fortunate accident, were at ſtill greater pains to teach him the hiſtory and religion of his fathers. Many things are related by hiſtorians concerning the firſt period of Moſes's life, which are not recorded in the Old Teſtament. According to Joſephus and Euſebius, he made war on the Ethiopians, and completely defeated them. They add, that the city Saba, in which the enemy had been forced to take refuge, was betrayed into his hands by the king's daughter, who became deeply enamoured of him, when ſhe beheld from the top of the walls his valorous exploits at the head of the Egyptian army. But the truth of this expedition has been doubted. But from the ſacred records we learn events of much greater importance, which commenced in the 40th year of Moſes's age. His leaving the court of Pharaoh, and viſiting his oppreſſed brethren; his killing one of their oppreſſors, and conſequent flight to Midian; his 40 years reſidence with Jethro, marriage with his daughter Zipporah, and birth of his ſon Gerſhom; his viſion of the burning but unconſumed buſh; his miſſion by the Almighty to Pharaoh; his heſitation, and the miracles wrought with his r
to encourage him; his meeting with his broth
Aaron; their reception by the Egyptian tyra
and conſequent increaſe of the Hebrews taſk
their miracles wrought to convince him witho
effect; the threatenings and execution of the t
plagues; 1. by the change of the waters of Egy
into blood; 2. by ſwarms of frogs, 3. of lice, a
4. of flies; 5. by peſtilence among the cattle;
by ulcers and fiery biles; 7. by a dreadful ſtorm
thunder, lightning, and hail; 8. by ſwarms of l
cuſts; 9. by thick darkneſs; and 10. by the dea
of the firſt-born; with Pharaoh's reluctant co
ſent to liberate the Hebrews; his purſuit of the
and deſtruction in the Red Sea; are particula
recorded in Exod. ii.—xx. Profane authors wh
have written of Moſes, ſeem to have been part
acquainted with theſe mighty wonders. That h
performed miracles, has been allowed by many
by whom he was conſidered as a famous magi
cian; and he could ſcarce appear in any othe
light to men who did not acknowledge him fo
the meſſenger of the Almighty. Both Diodoru
and Herodotus mention the diſtreſſed ſtate to
which Egypt was reduced by theſe terrible calamities. The ſubſequent hiſtory of Moſes and the Iſraelites we have from the ſame authentic records. Their journeyings and various encampments in the wilderneſs; their battles with the Amalekites; their arrival at Mount Sinai; Moſes's reception of the Law from the Almighty; the idolatry of the people while he was on the Mount, which made him break the tables; their puniſhment; his receipt of the two tables a ſecond time; his illuminated appearance on his return; his erection and conſecration of the tabernacle, which ſerved inſtead of a temple till the building of the famous one by Solomon; his conſecration of Aaron and his ſons, and the Levites, to the prieſthood; his theocratic government of the Hebrews, under the immediate authority and direction of the Almighty, with their repeated murmurings; his dying bleſſing upon them, with his prophecy of our Saviour; his diſtant view of the promiſed land from Mount Piſgah, and his death; are recorded, with other important particulars, in the four laſt books of the Pentateuch. He died without ſickneſs or pain, in the 120th year of his age, and 1451 years before Jeſus Chriſt. Moſes is inconteſtibly the author of the firſt five books of the Old Teſtament, which are acknowledged to be inſpired, by the Jews, and by Chriſtians of every perſuaſion. Thomas Paine and others, however, have denied that Moſes was the author of theſe books, becauſe he always ſpeaks of himſelf in the third perſon. But this manner of writing is not peculiar to Moſes; it occurs in ſeveral celebrated ancient hiſtorians, ſuch as Xenophon, Cæſar, Joſephus, &c. who have thus evidenced more modeſty and good ſenſe than ſome modern hiſtorians, whoſe egotiſm is altogether diſguſting.

(2.) Moses Ægyptius. See Maimonides.

(3.) Moses Mendelshon. See Mendelshon.

MOSHEIM, John Laurence, an illuſtrious German divine, born in 1695, of a noble family, which might have opened to his ambition a fair path to civil promotion; but his zeal for religion, his thirſt after knowledge, and his taſte for ſacred literature,

erature, induced him to devote his talents to e church. The German univerſities loaded him ith literary honours; the king of Denmark in- ted him to Copenhagen: the duke of Brunſwick lled him thence to Helmſtadt, where he filled e academical chair of divinity; was made ec- eſiaſtical counſellor to the court; and preſided er the ſeminaries of learning in Wolfenbuttle d Blanckenburgh. To give an uncommon de- ee of luſtre to the univerſity of Gottingen, Dr oſheim was placed at the head of it, as chan- llor; and he died there, univerſally lamented, 1755. In judgment, taſte, eloquence, erudi- on, and philoſophy, he had certainly very few uperiors. His principal work is his *Eccleſiaſtical ſtory*, from the birth of Chriſt to the beginning f the 18th century, written in Latin. It was ranſlated into Engliſh, and accompanied with otes and chronological tables by Archibald Mac- hine, D. D. 1758, in 5 vols 8vo.

MOSKITO. See Mosquito.

MOSKOE, an iſland of Norway.

MOSKOE-STROM. See Maelstrom.

MOSKVA, a river of Moſcow, which gives name to the capital, and flows through it in a winding channel; but, excepting in ſpring, is only navigable for rafts. It receives the Yaūa in the Semlainogorod, and the Neglina at the weſtern extremity of the Kremlin; the beds of both theſe laſt-mentioned rivulets are in ſummer little better than dry channels. (See Moscow, N° 2.)

(1.) * **MOSQUE.** *n. ſ.* [*moſquee*, French; *moſchit*, Turkiſh.] A Mahometan temple.

(2.) Mosques, are ſquare buildings, generally conſtructed of ſtone. Before the chief gate there is a ſquare court paved with white marble; and low galleries round it, whoſe roof is ſupported by marble pillars. In theſe gallaries the Turks waſh themſelves before they go into the moſque. In each moſque there is a great number of lamps; and between theſe hang many cryſtal rings, oſtrich's eggs, and other curioſities, which, when the lamps are lighted, make a fine ſhow. As it is not lawful to enter the moſque with ſtockings or ſhoes on, the pavements are covered with pieces of ſtuff ſewed together, each being wide enough to hold a row of men kneeling, ſitting, or proſtrate. The women are not allowed to enter the moſque, but ſtay in the porches without. About every moſque there are ſix high towers, called *minarets*, each of which has three little open galleries, one above another: theſe towers, as well as the moſques, are covered with lead, and adorned with gilding and other ornaments; and thence, inſtead of a bell, the people are called to prayers by certain officers appointed for that purpoſe. Moſt of the moſques have a kind of hoſpital belonging to them, in which travellers of what religion ſoever are entertained three days. Each moſque has alſo a place called *tarbe*, which is the burying-place of its founders; within which is a tomb 6 or 7 feet long, covered with green velvet or ſattin; at the ends of which are two tapers, and round it ſeveral ſeats for thoſe who read the koran and pray for the ſouls of the deceaſed.

MOSQUITO, or Moskito country, or Mosquito shore, is ſituated in North America, between 85° and 88° lon. W. and between 13° and 15° lat. N. having the North Sea on the N. and E. Nicaragua on the S. and Honduras on the W. But the Spaniards eſteem it a part of Honduras, though they have no colonies in it. When they firſt invaded this part of Mexico, they maſſacred the greateſt part of the natives, which gave thoſe that eſcaped into the inacceſſible part of the country an inſuperable averſion to them; and they have always appeared ready to join any Europeans that come upon their coaſts againſt the Spaniards, and particularly the Engliſh, who frequently come hither; and the Moſkito men being excellent markſmen, the Engliſh employ them in ſtriking the marata fiſh, &c. and many of the Moſkito Indians come to Jamaica, and ſail with the Engliſh in their voyages.

Mosquitos, a nation of N. American Indians who inhabit the above country and are ſo ſituated between moraſſes and inacceſſible mountains, and a coaſt full of rocks and ſhoals; that no attempts againſt them by the Spaniards, whom they mortally hate, could ever ſucceed. Nevertheleſs, they are a mild inoffenſive people, of great morality and virtue, and will never truſt a man who has once deceived them. They have ſo great a veneration for the Engliſh, that they have ſpontaneouſly put themſelves and their lands under the protection and dominion of the crown of England. This was firſt done when the duke of Albemarle was governor of Jamaica, and the king of the Moſkitos received a commiſſion from his grace, under the ſeal of that iſland; ſince which time they have not only been ſteady in their alliance with the Engliſh, but warm in their affections, and very uſeful to them on many occaſions. When their king dies, the male heir goes to Jamaica, to certify that he is next in blood, and receives a commiſſion in form from the governor of Jamaica to be king of the Moſkitos, till which he is not acknowledged as ſuch by his countrymen. So fond are theſe people of every thing that is Engliſh, that they are proud of every Chriſtian name or ſurname given them by our ſeamen, who honour their chief men with the titles of ſome of our nobility.

(1.) **MOSS**, Dr Robert, dean of Ely, eldeſt ſon of Mr Robert Moſs, a gentleman of property; was born at Gillingham in Norfolk in 1666. He was bred at Bennet college, Cambridge, where he early acquired great reputation. He became preacher to the ſociety of Gray's-inn, London, in 1698; and aſſiſtant to Dr Wake at St James's, in 1699. He was chaplain to K. William III, Q. Anne, and K. George I. and when Q. Anne viſited the univerſity of Cambridge, April 5. 1705, he was created D. D. In 1709, he was choſen lecturer by the pariſhioners of St Lawrence Jewry, which he held till 1727. In 1712, he was nominated by the queen dean of Ely, and in 1714 he was collated, by Bp. Robinſon rector of Gliſton. The gout deprived him of the uſe of his limbs for ſome of the laſt years of his life. He died March 26, 1729, in his 63d year, and was buried in his own cathedral. His character may be ſeen in the preface to the 8 volumes of his ſermons, which were publiſhed by Dr Snape. Dean Moſs is alſo ſaid to have been the author of a pamphlet printed in 1717, entitled, The report vindicated from miſreports;

reports; being a defence of the biſhops and clergy of the lower houſe of convocation, concerning their conſultations about the biſhop of Bangor's writings. He wrote alſo ſome Latin and Engliſh poems.

(2.) * Moss. *n. ſ.* [*muſcus*, Latin; *meos*, Saxon.] A plant.—Though *moſs* was formerly ſuppoſed to be only an excreſcence produced from the earth and trees, yet it is no leſs a perfect plant than thoſe of greater magnitude, having roots, flowers, ſeeds, yet cannot be propagated from ſeeds by any art: the botaniſts diſtinguiſh it into many ſpecies: it chiefly flouriſhes in cold countries, and in the winter ſeaſon, and is many times very injurious to fruit trees; the only remedy in ſuch caſes, is to cut down part of the trees, and plough up the ground between thoſe left remaining; and in Spring, or moiſt weather, you ſhould with an iron inſtrument ſcrape off the *moſs*. *Miller.*—*Moſs* is a kind of mould of the earth and trees; but it may be better ſorted as a rudiment of germination. *Bacon.*—

Houſes then were caves, or homely ſheds,
With twining oziers fenc'd, and *moſs* their beds.
Dryden.

—Such *moſſes* as grow upon walls, roofs of houſes, and other high places, have ſeeds that, when ſhaken out of their veſſels, appear like vapour or ſmoke. *Ray on the Creation.*

(3.) Moss, or Mosses, in botany. See Musci.

(4.) Moss, (§ 2.) *on trees*, in gardening. The growth of large quantities of moſs on any kind of tree is a diſtemper very prejudicial to its increaſe, and greatly damages the fruit of the trees of many orchards. The uſual remedy is the ſcraping it off from the body and large branches by a kind of wooden knife that will not hurt the bark, or with a piece of rough hair cloth, which does very well after a ſoaking rain. But the moſt effectual cure is the taking away the cauſe, by draining off all the ſuperfluous moiſture from about the roots of the trees; and may be guarded againſt in the firſt planting, by not ſetting them too deep. If trees ſtand too thick in a cold ground, they will always be covered with moſs. The beſt remedy is to thin them. When the young branches of trees are covered with a long and ſhaggy moſs, it will utterly ruin them; and there is no way to prevent it but to cut off the branches near the trunk, and even to take off the head of the tree if neceſſary; for it will ſprout again; and if the cauſe be in the mean time removed by thinning the plantation, or draining the land and ſtirring the ground well, the young ſhoots will continue clear after this. If the trees are covered with moſs in conſequence of the ground being too dry, (as this will happen from either extreme in the ſoil,) the proper remedy is laying mud from the bottom of a pond or river pretty thick about the root, opening the ground to ſome diſtance and depth to let it in. This will not only cool it, and prevent its giving growth to any great quantity of moſs, but will alſo prevent any other miſchief which fruit-trees are liable to in dry grounds, by the falling off of the fruit too early. The moſſes which cover the trunks of trees, as they always are freſheſt and moſt vigorous on the ſide which points to the north, if only produced on that, ſerve to preſerve the trunk of the tree from the ſeverity of the N. winds, and direct the traveller in his way, by always plainly pointing out that part of the compaſs.

(5.) Moss is alſo a name given by ſome to the boggy ground in many parts of England, otherwiſe called a Bog, or Fen. (See theſe articles.) In many of theſe grounds, as well in Britain and Ireland as in other parts of the world, there are found vaſt numbers of trees ſtanding with their ſtumps erect, and their roots piercing the ground in a natural poſture as when growing. Many of theſe trees are broken or cut off near the roots, and lie along, and this uſually in a NE. direction. To account for this many authors have reſolved it into the effect of the deluge in the days of Noah; but this conjecture is proved falſe by many deciſive arguments. The waters of this deluge might indeed have waſhed together a great number of trees, and buried them under loads of earth; but then they would have lain irregularly and at random; whereas they all lie lengthwiſe from SW. to NE. and the roots all ſtand in their natural perpendicular poſture, as cloſe as the roots of trees in a foreſt. Beſides, theſe trees are not all in their natural ſtate, but many of them have evident marks of human workmanſhip upon them ſome being cut down with an axe, ſome ſplit, and the wedges ſtill remaining in them; ſome burnt in different parts, and ſome bored through with holes. Theſe things are alſo proved to be of a later date than the deluge, by other matters found among them, ſuch as utenſils of ancient people, and coins of the Roman emperors. It appears from the whole, that all the trees, which we find in this foſſile ſtate, originally grew in the very places where we now find them, and have only been thrown down and buried there, not brought from other places. It may appear indeed an objection to this opinion, that moſt of theſe foſſile trees are of the fir kind; and that Cæſar ſays expreſsly, that no firs grew in Britain in his time: but this is eaſily anſwered by obſerving, that theſe trees, though of the fir kind, yet are not the ſpecies uſually called the *fir*, but pitch tree; and Cæſar has no where ſaid that pitch trees did not grow in England. Norway and Sweden ſtill abound with theſe trees; and there are at this time whole foreſts of them in many parts of Scotland, and a great number of them wild upon a hill at Wareton in Staffordſhire. In Hatfield marſh, where ſuch vaſt numbers of the foſſile trees are now found, there has evidently once been a whole foreſt of them growing. The laſt of theſe was found alive, and growing in that place within theſe laſt 80 years, and cut down for ſome common uſe. It is alſo objected by ſome to the ſyſtem of the firs growing where they are found foſſile, that theſe countries are all bogs and moors, whereas theſe trees grow only in mountainous places. But this is a miſtake, for though in Norway in Sweden, and ſome other cold countries, the fir kinds all grow upon barren and dry rocky mountains, yet in warmer places they are found to thrive as well on wet plains. Such are found plentifully in Pomerania, Livonia, and Courland, &c. and in the W. parts of New England there are vaſt numbers of fine ſtately trees; of them in low grounds. The truth ſeems to be, that theſe trees love a ſandy ſoil; and ſuch is found at the bottoms of all the moſſes where theſe trees are found foſſile. The roots of the fir kind are always found fixed in theſe; and thoſe of oaks, where they are found foſſile in this manner, are uſually found fixed in clay: ſo that each kind of tree is always found rooted in the places where they ſtand in their proper ſoil; and there is no doubt but that they originally grew there. When we have thus found that all foſſile trees we meet with, once grew in the places where they are now buried, it is plain that in theſe places there were once noble foreſts, which have been deſtroyed at ſome time; and the queſtion only remains how and by whom they were deſtroyed. This, we have reaſon to believe, from the Roman coins found among them, was done by the people of that empire, when they were eſtabliſhed in Britain. Cæſar tells, that when their armies purſued the wild Britons, theſe people always ſheltered themſelves in the miry woods and low watery foreſts; and that Caſſibelan and his Britons, after their defeat, paſſed the Thames, and fled into ſuch low moraſſes and woods, that there was no purſuing them. We find that the Silures ſecured themſelves in the ſame manner when attacked by Oſtorius and Agricola. The ſame thing is recorded of Venutius king of the Brigantes who fled, to ſecure himſelf, into the boggy foreſts in the midland part of this kingdom: and Herodian expreſsly ſays, that while the Romans were puſhing their conqueſts in theſe iſlands, it was the cuſtom of the Britons to ſecure themſelves in the thick foreſts which grew in their boggy and wet places; and when opportunity offered, to iſſue out thence and fall upon the Romans. The conſequence of all this was the deſtroying of thoſe foreſts; the Romans finding themſelves ſo plagued with parties of the natives iſſuing out upon them at times from theſe foreſts, that they gave orders for the cutting down and deſtroying all the foreſts in Britain which grew on boggy and wet grounds. Theſe orders were punctually executed; and to this it is owing, that we can now hardly believe that ſuch foreſts ever grew in Britain as are now found buried in moſſes. The Roman hiſtorians all agree, that when Suetonius Paulinus conquered Angleſea, he ordered all the woods to be cut down there, in the manner of the Roman generals in England: and Galen tells us, that the Romans, after their conqueſt in Britain, kept their ſoldiers conſtantly employed in cutting down foreſts, draining marſhes, and paving bogs. Not only the Roman ſoldiers were employed in this manner, but all the native Britons made captives in the wars were obliged to aſſiſt in it: and Dion Caſſius ſays, that the emperor Severus loſt no leſs than 50,000 men, in a few years, in cutting down the woods and draining the bogs of this iſland. It is not then to be wondered at, that ſuch numbers executed the immenſe deſtruction which we find in theſe buried foreſts. One of the greateſt ſubterranean treaſures of wood is that near Hatfield; and it is eaſy to prove, that theſe people, to whom this havock is thus attributed, were upon the ſpot where theſe trees now lie buried. The common road of the Romans out of the ſouth into the north, was formerly from Lindum, (now Lincoln), to Segelochum, (Little Burrow upon Trent), and thence to Danum, (now Doncaſter), where they kept a ſtanding garriſon of Criſpinian horſe. A little off on the E. and NE. of their road, between the two laſt named towns, lay the borders of the greateſt foreſt, which ſwarmed with wild Britons, who were continually making their ſallies out, and their retreats into it again, intercepting their proviſions, taking and deſtroying their carriages, killing their allies and paſſengers, and diſturbing their garriſons. This at length ſo exaſperated the Romans, that they were determined to deſtroy it; and to do this ſafely and effectually, they marched againſt it with a great army, and encamped on a great moor near Finningly: this is evident from the fortifications yet remaining. There is a ſmall town in the neighbourhood called *Oſterfield;* and as the termination *field* ſeems to have been given chiefly in remembrance of battles fought near the towns, whoſe names end with it, it is probable that a battle was fought here between all the Britons who inhabited this foreſt and the Roman troops under Oſtorius. The Romans ſlew many of the Britons, and drove the reſt back into this foreſt, which at that time overſpread all this low country. On this the conquerors taking advantage of a ſtrong SW. wind, ſet fire to the pitch-trees, of which this foreſt was principally compoſed; and when the greater part of the trees were thus deſtroyed, the Roman ſoldiers and captive Britons cut down the remainder, except a few large ones, which they left ſtanding as memorials of the deſtruction of the reſt. Theſe ſingle trees, however could not ſtand long againſt the winds, and theſe falling into the rivers which ran through the country, interrupted their currents; and the water then overſpreading the level country, made one great lake, and gave origin to the moſſes or moory bogs, which were afterwards formed there, by the workings of the waters, the precipitation of earthy matter from them, and the putrefaction of rotten boughs and branches of trees, and the vaſt increaſe of water-moſs, and other ſuch plants which grow in prodigious abundance in all theſe places. Thus were theſe burnt and felled trees buried under a new-formed ſpongy and watery earth, and afterwards found on the draining and digging through this earth again. Hence Roman weapons and Roman coins are found among theſe buried trees; and hence among the buried trees ſome are found burnt, ſome chopped and hewn; and hence it is that the bodies of the trees all lie by their proper roots, and with their tops lying NE. that is, in that direction in which a SW. wind would blow them down: hence alſo it is, that ſome of the trees are found with their roots lying flat, theſe being not cut or burnt down, but blown up by the roots afterwards when left ſingle; and it is not wonderful, that ſuch trees as theſe ſhould have continued to grow even after their fall, and ſhoot up branches from their ſides, which might eaſily grow into high trees. *Phil. Tranſ.* N° 275. Upon this hypotheſis it is alſo eaſily explained, why the moor-ſoil in the country is in ſome places two or three yards thicker than in others, or higher than it was formerly, ſince the growing up of peat, earth, or bog-ground, is well known, and the ſoil added by overflowing of waters is not a little. As the Romans were the deſtroyers of this great and noble foreſt, ſo they were probably alſo of the ſeveral other ancient foreſts; the ruins of which furniſh us with the bog-wood of Staffordſhire, Lancaſhire, Yorkſhire, and other countries. But as the Romans were not much in Wales, in the Iſle of Man, or in Ireland, it is not to be ſuppoſed that foreſts cut down by theſe people gave origin to the foſſile wood found there; but though they did not cut down theſe foreſts, others did; and the origin of the bog-wood is the ſame with them and with us. Holingſhed informs us, that Edward I. being not able to get at the Welch, becauſe of their hiding themſelves in boggy woods, gave orders at length that they ſhould all be deſtroyed by fire, and by the axe; and doubtleſs the roots and bodies of trees found in Pembrokſhire under ground are the remains of the execution of this order. The foſſile wood in the bogs of the Iſle of Man is doubtleſs of the ſame origin, though we have not any accounts extant of the time or occaſion of the foreſts there being deſtroyed; but as to the foſſile trees of the bogs of Ireland, we are expreſsly told, that when Henry II. conquered that country, he ordered all the woods to be cut down that grew in the low parts of it, to ſecure his conqueſts, by deſtroying the places of reſort of the rebels.

(6.) Moss, moving. In the *Philoſ. Tranſ.* we have an account of a moving moſs near Churchtown in Lancaſhire, which greatly alarmed the neighbourhood as miraculous. The moſs was obſerved to riſe to a ſurpriſing height, and ſoon after ſunk as much below the level, and moved ſlowly towards the ſouth. A very ſurpriſing inſtance of a moving moſs is that of Solway in Scotland, which happened in 1771, after ſevere rains, which had produced terrible inundations of the rivers in many places. About 800 acres of arable ground were overflowed by moſs, and the habitations of 17 families deſtroyed. Tradition has preſerved the memory of a ſimilar inundation in Monteith in Scotland. A moſs there altered its courſe in one night, and covered a great extent of ground.

(7.) Moss of Kincardine, a remarkable tract of ground ſituated in the pariſh of the ſame name, comprehended between the rivers Forth and Teith, and in that diſtrict of Perthſhire called Monteith. (See Kincardine, N° 1. & 6.) The moſs begins about a mile above the confluence of theſe rivers; whence it extends in length about 4 miles, and from one to two in breadth; and originally comprehended near 2000 Scotch acres. Above 400 acres of the ſoil, however, have been cleared of this fruitleſs covering by the application of water. The water is raiſed from the river Teith, and conducted through the moſs by drains, into which the moſſy ſurface is thrown, and carried into the Forth; and thus in a ſhort time the whole moſs will be entirely floated away. We give three ſketches (*Plate* CCXXVII, *fig.* 1, 2, & 3.) of the machine invented by Mr George Meikle of Alloa, which is employed for raiſing the water: *Fig.* 1. *a.* Sluice through which is admitted the water that moves the wheel. *b, b.* Two ſluices through which is admitted the water raiſed by the wheel. *c, c.* A part of one of two wooden troughs and an aperture in the wall, through which the above water is conveyed into the buckets. The other trough is hid by two ſtone walls that ſupport the wheel. *d, d, d.* Buckets, of which 80 are arranged on each ſide of the arms of the wheel =160. *e, e, e.* A ciſtern, into which the water raiſed by the buckets is diſcharged. *f, f, f.* Wooden barrel-pipes, through which the water deſcends from the ciſtern under ground. *Fig.* 2. ſhews a plan of the ciſtern, and exhibits the manner in which the water is filled into the buckets: *a.* The intervals in which the arms of the wheel move. *b.* The ſpace through which the float-boards and buckets deſcend. *c, c.* The trough into which the buckets empty themſelves. *d.* The aperture through which the waters run into the pipes. *Fig.* 3. ſhows the manner in which the water is filled from the troughs into the buckets. The diameter of the wheel to the extremities of the float-boards is 28 feet; the length of the float-boards, 10 feet. The wheel makes nearly 4 revolutions per minute; in which time it diſcharges into the ciſtern 40 hogſheads of water. By this uſeful machine, the public ſpirit of the proprietor, and the induſtry of the people, who reap the fruits of the ſoil they clear, has nearly one 4th part of this extenſive moſs been already brought into a ſtate of cultivation and fertility. There is probably no track of land of the ſame extent, equally unprofitable and uſeleſs, that has ever been rendered ſo productive and populous in any part of Great Britain, perhaps of the world. For this extraordinary piece of improvement, by which 2000 acres will be ultimately recovered from a ſtate of inutility, and by which nearly 1000 Highlanders are already happily ſettled in their own country, inſtead of emigrating to America, Scotland is indebted to the inventive genius and patriotic exertions of the late Lord Kames; (ſee Home, N° 1.) which have been, and ſtill are, continued with equal public ſpirit by his ſon Mr Home-Drummond. For a more particular account of the *High* and *Low Moſſes of Kincardine*, the ſtrata of which they are compoſed, their probable origin, and the riſe, progreſs and preſent ſtate of their improvements, we refer our readers to Sir John Sinclair's *Statiſtical Account of Scotland;* vol. xxi. p. 151—181; where all theſe important matters are moſt accurately deſcribed.

* *To* Moss. *v. a.* [from the noun.] To cover with moſs.—

An oak whoſe boughs were *moſs'd* with age. *Shak.*

Will theſe *moſs'd* trees,
That have out-liv'd the eagle, page thy heels,
And ſkip when thou point'ſt out? *Shak.*

(1.) MOSSA, a town of Auſtria in Goritz.

(2.) Mossa, a town of France, in the dep. of Seſia, and late lordſhip of Vercelli, in Piedmont; 23 miles NNW. of Vercelli.

MOSSALE, a town of Parma, 19 m. S. of Parma.

MOSSAR, a town of Lithuania, in Wilna.

MOSSEL, a town of France, in the dep. of the Eaſtern Pyrenees; 24 miles W. of Perpignan.

MOSSELPATTY, a town of Ceylon.

* MOSSINESS. *n. ſ.* [from *moſſy.*] The ſtate of being covered or overgrown with moſs.—The

herbs

MOSS.

Plate CCXXVII.

Moss's Water-Wheel.

Fig.1.

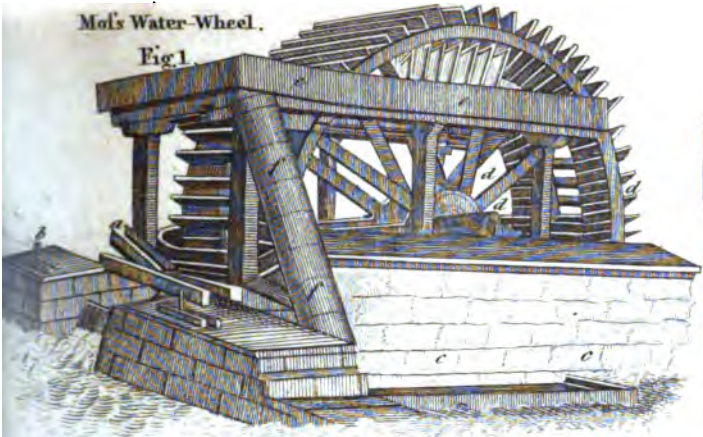
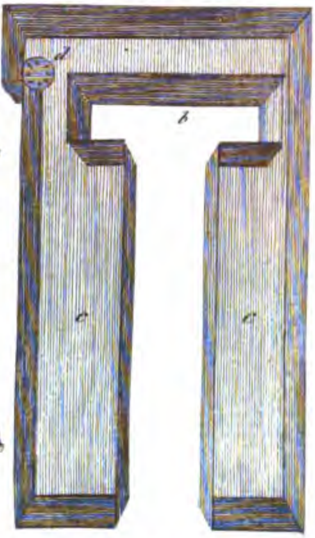


Fig.2.

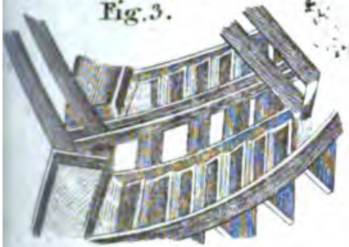
Sketch of the Cistern

as seen from above.



The manner in which the water is filled from the Troughs into the Buckets.

Fig.3.



MUREX.

Fig.1.

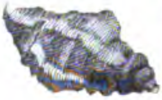
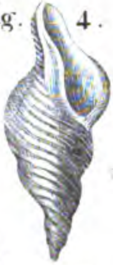


Fig. 4.



Moschus Moschiferus.

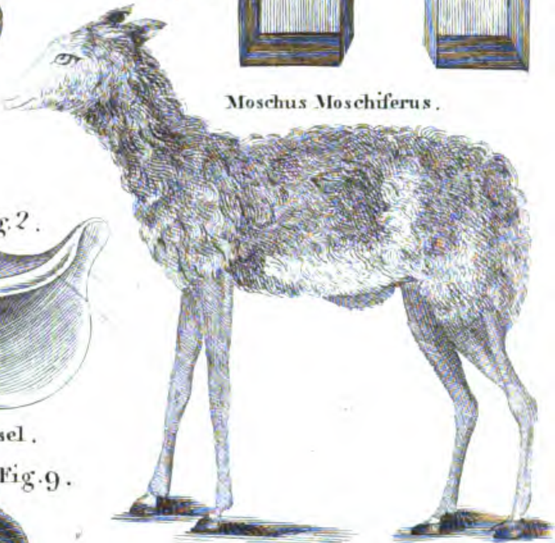


Fig.3.

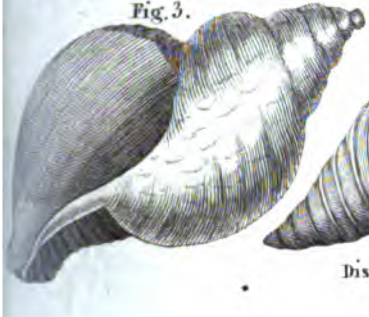
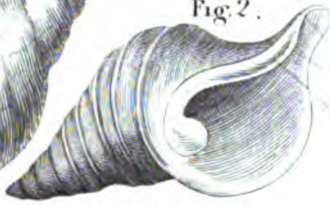
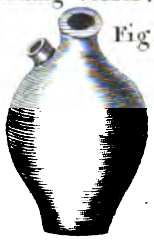


Fig.2.



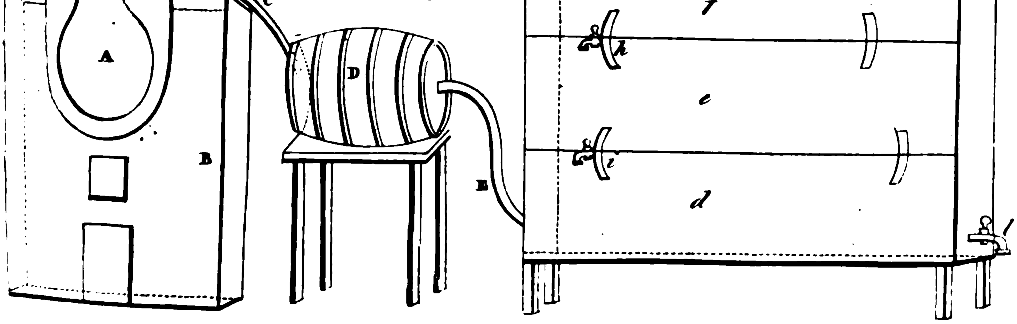
Distilling Vessel.

Fig.9.



Apparatus for distilling Muriatic Acid.

Fig.10.



T. Clark Sculp.

herbs withered at the top, ſheweth the earth to be very cold, and ſo doth the *moſſineſs* of trees. *Bacon.*

MOSSING, a town of Germany, in Bavaria.

MOSS-TROOPERS, a rebellious ſort of people in the north of England, who lived by robbery and rapine, not unlike the tories in Ireland, the buccaniers in Jamaica, or banditti of Italy. The counties of Northumberland and Cumberland were charged with an yearly ſum, and a command of men, to be appointed by juſtices of the peace, to apprehend and ſuppreſs them.

MOSSULA, a town of Africa, in Congo.

* MOSSY, *adj.* [from *moſs.*] Overgrown with moſs; covered with moſs.—Old trees are more *moſſy* far than young. *Bacon's Nat. Hiſtory.*—

About the *moſſy* brooks and ſprings. *Cowley.*
The *moſſy* fountains and the ſylvan ſhades
Delight no more. *Pope's Meſſiah.*

(1.) * MOST. *adj.* the ſuperlative of *more.* [*maſt*, Sax. *meeſt*, Dutch.] 1. Conſiſting of the greateſt number; conſiſting of the greateſt quantity.—*Moſt* ſorts of berries will produce diarrhœas. *Arbuth.* —He thinks *moſt* ſorts of learning flouriſhed among them. *Pope.* 2. Greateſt. Obſolete.—

They all repair'd both *moſt* and leaſt. *Spenſer.*

(2.) * Most. *adv.* [*maiſts*, Gothick; *maſt*, Sax. *meeſt*, Dutch; *meſt*, Daniſh.] 1. In the greateſt degree.—

Coward dogs
Moſt ſpend their mouths, when what they ſeem
to threaten
Runs far before them. *Shak.*
He for whoſe only ſake,
Or *moſt* for his, ſuch toils I undertake. *Dryd.*

—Under that conſciouſneſs, the little finger is as much a part of itſelf as what is *moſt* ſo. *Locke.*—That which will *moſt* influence their carriage will be the company they converſe with. *Locke.* 2. The particle noting the ſuperlative degree.—Competency of all other proportions is the *moſt* incentive to induſtry; too little makes men deſperate, and too much careleſs. *Decay of Piety.*—The faculties of the ſupreme ſpirit *moſt* certainly may be enlarged without bounds. *Cheyne's Phil. Principles.*

(3.) * Most. [This is a kind of ſubſtantive, being, according to its ſignification, ſingular or plural.] 1. The greateſt number; in this ſenſe it is plural.—Many of the apoſtles immediate diſciples ſent or carried the books of the four evangeliſts to *moſt* of the churches they had planted. *Addiſ.* —Gravitation not being eſſential to matter, ought not to be reckoned among thoſe laws which ariſe from the diſpoſition of bodies, ſuch as *moſt* of the laws of motion are. *Cheyne.* 2. The greateſt value; in this ſenſe ſingular.—The report of this repulſe flying to London, the *moſt* was made of that which was true, and many falſities added. *Hayward.*—A coveteous man makes the *moſt* of what he has, and can get. *L'Eſtrange.* 3. The greateſt degree; the greateſt quantity; the utmoſt. —A Spaniard will live in Iriſh ground a quarter of a year, or ſome months at *moſt*. *Bacon.*

(4.) Most, a town of Bohemia, in Saatz.

MOSTAGAN, a town of Africa, in Algiers.

MOSTAR, a town of Turkey, in Dalmatia.

* MOSTICK. *n. ſ.* A painter's ſtaff on which he leans his hand when he paints. *Ainſworth.*

* MOSTLY, *adv.* [from *moſt.*] For the greateſt part.—Natural reaſon, if totally or *moſtly* defaced, the right of government doth ceaſe. *Bacon.*

MOSTOLOS, a town of Spain, in N. Caſtile.

MOSTRA, in the Italian muſic, a mark at the end of a line or ſpace, to ſhow that the firſt note of the next line is in that place: and if this note be accompanied with a ſharp or flat, it is proper to place theſe characters along with the moſtra.

* MOSTWHAT. *adv.* [*moſt* and *what.*] For the moſt part. Obſolete.—Theſe promiſes being but ſeldom abſolute, *moſtwhat* conditionate, the Chriſtian grace of hope muſt be proportioned and attemperate to the promiſe. *Hammond.*

MOSTY, a town of Lithuania.

MOSUL, or Mousul. See Mousul.

MOSZOW, a town of Poland, in Braclaw.

MOTA, two towns of Spain: 1. in New Caſtile: 2. in Leon, 30 miles SW. of Valladolid.

MOTACILLA, in ornithology, the Wagtail and Warbler, a genus of birds of the order of paſſeres; diſtinguiſhed by a ſtraight weak bill of a ſubulated figure, a tongue lacerated at the end, and very ſlender legs. There are about 170 ſpecies, beſides varieties. The moſt remarkable are theſe:

1. Motacilla alba, the *white wagtail*, frequents the ſides of ponds and ſmall ſtreams, and feeds on inſects and worms. The head, back, and upper and lower ſide of the neck, as far as the breaſt, are black; in ſome the chin is white, and the throat marked with a black creſcent: the breaſt and belly are white; the quill-feathers are duſky; the coverts black, tipt and edged with white. The tail is very long, and always in motion. Mr Willoughby obſerves, that this ſpecies ſhifts its quarters in the winter, moving from the N. to the S. of England. In ſpring and autumn it is a conſtant attendant on the plough, for the ſake of the worms thrown up by that inſtrument. Theſe birds make their neſt on the ground, compoſed of dry graſs, fine fibres of roots and moſs, lined within with hair or feathers. The eggs are 5 in number, white, ſpotted with brown; and for the moſt part there is only one brood in a year.

2. Motacilla atricapilla, the black-cap, is ſmaller than the linnet, or even the pettichaps. (N° 6.) The bill is brown; the top of the head is black; and the upper parts of the body are of a greeniſh aſh colour; the ſides of the head and under parts are grey, changing to very light grey, or almoſt white, towards the vent; the quills and tail are cinereous brown, margined with the ſame colour as the upper parts; legs are lead-coloured, and the claws black. This ſpecies is pretty common in England, and elſewhere in Europe, as far as Italy; in all which places it breeds, coming in ſpring, and retiring in September. In Italy it builds twice in the year; with us only once. The neſt, which is generally placed in ſome low buſh near the ground, is compoſed of dried ſtalks, mixed with a little wool and green moſs round the verge; the inſide lined with the fibres of roots, thinly covered with black horſe hair. The eggs are five in number; of a pale reddiſh brown, mottled with a deeper colour, and ſprinkled with a few dark ſpots. The male and the female ſit by turns during incubation: and the young very early

leap out of the neſt, eſpecially if any one approaches it, and forſake it for ever. The food is chiefly inſects; but in defect of theſe they eat the fruit of ſpurge laurel, ſervice, and ivy; and ſeem to be even fond of the laſt, as they much frequent trees overgrown with it. The ſong is much eſteemed, in many things almoſt equalling the nightingale itſelf; ſcarcely deficient, except in the delightful variety of note. Hence it has been named the *mock nightingale*.

3. Motacilla cyanea, the *ſuperb warbler*, a moſt beautiful ſpecies, is 5½ inches long. The bill is black; the feathers of the head are long, and ſtand erect like a full creſt; from the forehead to the crown they are of a bright blue; thence to the nape, black like velvet; through the eyes from the bill there runs a line of black; and beneath the eye ſprings a tuft of the ſame blue feathers; beneath which, and on the chin, it is of a deep blue, almoſt black, and feeling like velvet: on the ears is another patch of blue, and acroſs the back part of the head a band of the ſame; the whole giving the head a greater appearance of bulk than is natural: the hind part of the neck, and upper parts of the body and tail, are of a deep blue black; the under, pure white; the wings are duſky; the ſhafts of the quills cheſnut; the legs duſky brown; the claws black. This ſpecies inhabits Van Diemen's Land, the moſt ſouthern part of New Holland. The female is entirely deſtitute of all the fine blue colours, both pale and dark, by which the male is adorned, except that there is a very narrow circle of azure round each eye, apparently on the ſkin only; all the upper feathers conſiſt of ſhades of brown, and the whole throat and belly is pure white. Except from the ſhape and ſize, the female would not be ſuſpected to belong to the ſame ſpecies as the male: the epithet of *ſuperb* therefore applies very ill to her.

4. Motacilla ficedula, the *epicurean warbler*, is in length five inches: the upper parts are grey brown; the under parts greyiſh white, with a tinge of brown on the breaſt; and the legs are blackiſh. This ſpecies is much eſteemed on the continent for the delicate flavour of its fleſh. Their chief food is inſects; except in autumn, when they make great havock among the figs and grapes; whence it is ſuppoſed their great delicacy ariſes. It is not found in England; but in moſt of the intermediate parts between Sweden and Greece; where, however, it is only a ſummer inhabitant, retiring ſtill farther ſouth at the approach of winter. In the iſles of Cyprus and Candy they abound greatly; inſomuch as to be an article of commerce. They tranſport them in veſſels filled with vinegar and ſweet herbs; the iſle of Cyprus alone collects 1000 or 1200 of theſe pots every year.

5. Motacilla flava, the *yellow wagtail*, migrates in the north of England, but in Hampſhire continues the whole year. The male is a bird of great beauty; the breaſt, belly, thighs, and vent-feathers, being of a moſt vivid and lovely yellow: the throat is marked with ſome large black ſpots; above the eye is a bright yellow line: beneath that, from the bill, croſs the eye, is another of a duſky hue; and beneath the eye is a 3d of the ſame colour: the head and upper part of the body are of an olive green, which brightens in the coverts of the tail; the quill feathers are duſky; the coverts of the wings olive-coloured; but the lower rows duſky, tipt with yellowiſh white; the two outmoſt feathers of the tail half white; the others black, as in the Alba, N° 1. The colours of the female are far more obſcure than thoſe of the male: it wants alſo thoſe black ſpots on the throat. It makes its neſt on the ground, in corn fields: the outſide is compoſed of decayed ſtems of plants and ſmall fibrous roots; the inſide is lined with hair: it lays five eggs.

6. Motacilla hippolais, the *pettychaps*, is ſomewhat leſs than a linnet. The bill is ſhort; the upper mandible black, the under bluiſh; above and below the eye there is a yellowiſh line; the head, neck, and upper parts are of a greeniſh aſh colour; the quills and tail of a mouſe-colour, with greeniſh edges and black ſhafts; and the under wing-coverts are yellow; the belly is of a ſilvery white; the breaſt darker, and tinged with yellow; the legs are bluiſh or lead-coloured. This ſpecies is frequent in ſeveral parts of England, and makes a neſt of an arched form, compoſed of dry bents, mixed with a little moſs, and thickly lined with feathers: it is placed on the ground under a tuft of graſs or at the bottom of a buſh. The eggs are five in number, white, ſprinkled all over with ſmall red ſpots, moſt ſo at the largeſt end. In Dorſetſhire it is known by the name of *hay-bird*. In Yorkſhire it is called the *beam-bird*, from its neſtling under beams in out-buildings.

7. Motacilla luscinia, the nightingale, exceeds in ſize the hedge ſparrow. The bill is brown: the irides are hazel; the head and back pale tawney, daſhed with olive; the tail of a deep tawny red; the under parts are pale aſh-colour, growing white towards the vent; the quills cinereous brown, with the outer margins reddiſh brown; the legs cinereous brown. The male and female are very ſimilar. This bird, the moſt famed of the feathered tribe for the variety, length, and ſweetneſs of its notes, is migratory, and ſuppoſed to be an inhabitant of the Aſiatic regions during ſuch times as it is not to be found in Europe. It is met with in Siberia, Sweden, Germany, France, Italy, and Greece; but in all thoſe places it is migratory, as in England. Haſſelquiſt ſpeaks of it as being in Paleſtine; and Fryer aſcertains its being found about Chilminor in Perſia; it is alſo ſpoken of as a bird of China, Kamtſchatka, and Japan; at which laſt place they are much eſteemed, and ſell dear; as they are alſo at Aleppo, where they are "in great abundance kept tame in houſes, and let out at a ſmall rate to ſuch as chooſe it in the city, ſo that no entertainment is made in the ſpring without a concert of theſe birds." They are not found in America, though ſeveral of their birds improperly bear that name; and it is uncertain whether they are found in Africa. "Theſe birds viſit Britain in the beginning of April, and migrate in Auguſt; and during their continuance their range is confined to but a part of the iſland: they are not found in Scotland, Ireland, or North Wales, nor

it

in any of the northern counties except Yorkſhire; and do not migrate ſo far to the weſt as Devonſhire and Cornwall. They are ſolitary birds, never uniting even into ſmall flocks; and in reſpect to the neſts, it is very ſeldom that two are found near each other. The female builds in ſome low buſh or quickſet hedge well covered with foliage, for ſuch only this bird frequents; and lays 4 or 5 eggs, of a greeniſh brown. The neſt is compoſed of dry leaves on the outſide, mixed with graſs and fibres, lined with hair or down within, though not always alike. The female alone ſits on and hatches the eggs, while the male not far off regales her with his delightful ſong; but as ſoon as the young are hatched, he commonly leaves off ſinging, and joins with the female in the taſk of providing for and feeding them. After the young can provide for themſelves, the old female provides for a ſecond brood, and the ſong of the male recommences. They have been known to have three broods in a year, and in the hot countries even four. Theſe birds are often brought up from the neſt for the ſake of their ſong. They are likewiſe caught at their firſt coming over; and though old birds, yet by management can be made to bear confinement, and to ſing equally with thoſe brought up from the neſt. None but the vileſt epicure, as Mr Latham remarks, would think of eating theſe charming ſongſters; yet we are told that their fleſh is equal to that of the ortolan, and they are fatted in Gaſcony for the table. Every ſchoolboy muſt have read of Heliogabalus eating of nightingales tongues; and that famed diſh of the Roman tragedian Æſop, which was compoſed of thoſe of every ſinging or talking bird, and is ſaid to have coſt about 6843l. of our money.

8. MOTACILLA MODULARIS, the *hedge ſparrow*, a well known bird, has the back and wing coverts of a duſky hue, edged with reddiſh brown; rump of greeniſh brown; throat and breaſt of a dull aſh-colour; the belly a dirty white; and the legs of a dull fleſh-colour. This bird frequents hedges in England; where it makes its neſt of moſs and wool, lining it with hair, and lays 4 or 5 eggs of a fine pale blue. With us and the more northern regions it is ſeen at all ſeaſons; but in France it is migratory, coming in October, and departing northward in ſpring. The note of this bird would be thought pleaſant, did it not remind us of the approach of winter; beginning with the firſt froſts, and continuing till a little time in ſpring. Its often repeating the words *tit, tit, tit,* has occaſioned its being called *titling;* a name it is known by in many places.

9. MOTACILLA OENANTHE, the WHEAT-EAR, is in length 5½. The top of the head, hind part of the neck, and back, are of a bluiſh grey; and over the eye a ſtreak of white; the under parts of the body yellowiſh white, changing to pure white at the vent; the breaſt is tinged with red; and the legs are black. This ſpecies is met with in moſt parts of Europe, even as far as Greenland; and ſpecimens have alſo been received from the Eaſt Indies. It viſits England annually in the middle of March, and leaves us in September. It chiefly frequents heaths. The neſt is uſually placed under the ſhelter of ſome tuft, clod, ſtone, or the like, always on the ground, and often in ſome deſerted rabbit-burrow. It is compoſed of dry graſs or moſs, mixed with wool, rabbits fur, &c. or lined with hair and feathers. The eggs are from 5 to 8 in number, of a light blue, with a deeper blue circle at the large end. The young are hatched the middle of May. In ſome parts of England theſe birds are in vaſt plenty. About Eaſt Bourn in Suſſex they are taken in ſnares made of horſe-hair, placed beneath a long turf. Being very timid, the motion of a cloud, or the appearance of a hawk, will drive them for ſhelter into theſe traps. The numbers annually enſnared in that diſtrict alone amount to about 1840 dozen, which uſually ſell at 6d. per dozen. Quantities of theſe are eaten on the ſpot by the inhabitants; others are ſent up to the London poulterers; and many are potted, being as much eſteemed in England as the ortolan on the continent. Their food is inſects only; though in rainy ſummers they feed much on earth-worms, whence they are fatteſt in ſuch ſeaſons.

10. MOTACILLA PHOENICURUS, the *redſtart*, is ſomewhat leſs than the redbreaſt: the forehead is white; the crown of the head, hind part of the neck, and back, are deep blue grey; the cheeks and throat black; the breaſt, rump, and ſides red; and the belly white; the two middle tail feathers are brown; the reſt red; and the legs black. The female has the top of the head and back cinereous grey; chin white. The ſame parts are red in this ſex as in the male, but not ſo bright. The wings are brown in both ſexes. This bird is migratory; coming hither in ſpring, and departing about October. It is not ſo ſhy as many birds in reſpect to itſelf; for it approaches habitations, and often makes its neſt in ſome hole of a wall where numbers of people paſs by frequently, if no one meddles with the neſt; but the leaſt derangement of the eggs, or even looking at them, eſpecially if the female is diſturbed, cauſes her to forſake the neſt altogether. It frequently builds alſo in ſome hole of a tree. The neſt is compoſed chiefly of moſs, lined with hair and feathers. The eggs are blue, and 4 or 5 in number. This bird frequently wags its tail; but does it ſideways, like a dog when he is pleaſed, and not up and down like the wagtail. It is with difficulty that theſe birds are kept in a cage; nor will they ſubmit to it by any means if caught old. Their ſong has no great ſtrength; yet it is agreeable; and they will, if taught young, imitate the note of other birds, and ſing by night frequently as well as in the day time.

11. MOTACILLA REGULUS, the *gold-creſted wren*, is a native of Europe, and of the correſpondent latitudes of Aſia and America. It is the leaſt of all the European birds, weighing only a ſingle drachm. Its length is about 4½ inches; and the wings, when ſpread out, meaſure little more than ſix. (See *Plate* CCXXV. *fig.* 2.) On the top of its head is a beautiful orange-coloured ſpot, called its *creſt*, which it can hide at pleaſure; the margins of the creſt are yellow, and it ends in a pretty broad black line; the ſides of the neck are of a beautiful yellowiſh green; the eyes ſurrounded with a white circle; the neck and back

of a dark green mixed with yellow; the breaſt of a dirty white; the tail compoſed of 12 feathers of a brown colour, an inch and an half long, but not forked. In America it aſſociates with the titmice, running up and down the bark of lofty oaks with them, and collecting its food in their company, as if they were all of one brood. It feeds on inſects lodged in their winter dormitories in a torpid ſtate. It ſings very melodiouſly.

12. Motacilla rubecula, the red-breast, is univerſally known: the upper parts are of a green aſh-colour; the forehead, throat, neck, and breaſt, a rufous orange; the belly and vent whitiſh; the bill, legs, and ſides of the body, duſky. It is a conſtant inhabitant of theſe kingdoms, as well as the whole European continent, from Sweden to Italy. It abounds in Burgundy and Lorraine, where numbers are taken for the table, and thought excellent. It builds near the ground, if in a buſh; though ſometimes it fixes on an out-houſe, or retired part of ſome old building. The neſt is compoſed of dried leaves, mixed with hair and moſs, and lined with feathers. The eggs are of a duſky white, marked with irregular reddiſh ſpots; and from 5 to 7 in number. The young, when full feathered, may be taken for a different bird, being ſpotted all over. The firſt rudiments of the red break forth on the breaſt about the end of Auguſt; but it is the end of September before they come to the full colour. Inſects are their general food; but in defect of theſe they will eat many other things. No bird is ſo tame and familiar as this; cloſely attending the heels of the gardener when he is uſing his ſpade, for the ſake of worms; and frequently in winter entering houſes where windows are open, when they will pick up the crumbs from the table while the family is at dinner. Its familiarity has cauſed a petty name to be given it in ſeveral countries. The people about Bornholm call it *Tommiliden*; in Norway, *Peter Ronſmad*; the Germans, *Thomas Gierdet*; and we, *Robin Red-breaſt*.

13. Motacilla rubetra, the *whin-chat*, is ſomewhat bigger than the ſtone-chatter (N° 14.). The upper parts are blackiſh, edged with rufous; from the bill ariſes a ſtreak of white, which paſſes over the eye on each ſide, almoſt to the hind head; beneath this the cheeks are blackiſh; the chin is white; the reſt of the under parts rufous white; on the wing, near the ſhoulder, is a tranſverſe white mark, and another ſmaller near the baſtard wing, on the outer edge; the legs are black. The female differs in being paler, and the ſpots on the wings, and the white trace over the eye, being far leſs conſpicuous. This is not uncommon in Britain, and is ſeen in ſummer along with the ſtone-chatter on the heaths, where it breeds, making the neſt much after the manner of that bird. It lays 5 dirty white eggs, dotted with black. This ſpecies is common alſo in France, Italy, Germany, and the temperate parts of Ruſſia; but it is leſs common than the ſtone-chatter there, as well as in England. Its food is chiefly inſects; and it is ſaid to be as good as the ortolan, when fat.

14. Motacilla rubicola, the stone-chatter, is about 4¾ inches. The male has the upper parts of the body mixed blackiſh and pale rufous: on each ſide the neck there is a tranſverſe ſtreak of white; the breaſt is of a reddiſh yellow; the belly paler; and the legs are black. The female has the colours much leſs vivid. This ſpecies inhabits dry places, as heaths and commons; living on inſects of all kinds. It makes its neſt early, at the foot of ſome low buſh, or under a ſtone; and has 5 or 6 eggs of a bluiſh green, ſparingly marked with faint rufous ſpots. It is ſo very crafty as not to betray the place of the neſt, never alighting but at ſome diſtance, and creeping on the ground to it by the greateſt ſtealth. It is a reſtleſs bird, inceſſantly flying from buſh to buſh; and ſeems to have received its Engliſh name from its note, reſembling the clicking of two ſtones together.

15. Motacilla salicaria, the *ſedge bird*, is about the ſize of the black-cap, but more ſlender. The head is brown, marked with duſky ſtreaks; the cheeks are brown, with a white line over each eye, and a black one above it; the upper parts of the neck and back are of a reddiſh brown, and the wing-coverts and quills duſky; the under parts are white; but the breaſt and belly have a yellow tinge; the tail is brown, and much rounded; and the legs are duſky. This ſpecies is common in England, and frequents places where reeds and ſedges grow, among which it is ſaid to make its neſt, though it has been known to do this on the loweſt branches of trees. The neſt is compoſed of ſtraw and dried fibres of plants, lined with hair; and the eggs, five in number, of a dirty white, marbled with brown. It imitates the notes of the ſwallow, ſky-lark, houſe-ſparrow, and other birds, in a pleaſing but hurrying manner, and ſings all night.

16. Motacilla sialis, the *blue bird*, is a native of moſt parts of North America, and is about the bigneſs of a ſparrow. The eyes are large; the head and upper part of the body, tail, and wings, are of a bright blue, excepting that the ends of the feathers are brown. The throat and breaſt are of a dirty red. The belly is white. It flies ſwiftly, having very long wings; ſo that the hawk generally purſues it in vain. It makes its neſt in holes of trees; reſembles our robin red-breaſt in its diſpoſition, and feeds only on inſects.

17. Motacilla sutoria, the *tailor bird*, is a native of the Eaſt Indies. It is remarkable for the art with which it makes its neſt, to ſecure itſelf and its young in the moſt perfect manner poſſible againſt all danger from voracious animals. It picks up a dead leaf, and ſews it to the ſide of a living one; its ſlender bill is the needle, and its thread is formed of ſome fine fibres; the lining is compoſed of feathers, goſſamer, and down. The colour of the bird is light yellow; its length 3 inches; and its weight only 3-16ths of an ounce; ſo that the materials of the neſt, and its own ſize, are not likely to draw down a habitation depending on ſo ſlight a tenure. See *Plate* CCXXV. *fig.* 2.

18. Motacilla troglodytes, the wren, is a very ſmall ſpecies, in length only 3½ inches, though ſome have meaſured 4 inches. The bill is very ſlender, and of a duſky brown colour;

the head, neck, and back, are of a reddiſh brown; and over each eye a pale reddiſh white ſtreak: the under parts, as far as the breaſt, are of this laſt colour; the reſt more inclined to brown, croſſed with brown lines: the legs are pale brown. It generally carries the tail erect. The neſt is almoſt oval, and has only one ſmall entrance; it is chiefly compoſed of moſs, well lined with feathers. In this the female lays from 10 to 16 or 18 eggs, which are almoſt white, with reddiſh markings at the large end. She builds twice a-year, in April and June. The neſt is often found in ſome corner of an out-houſe, ſtack of wood, hole in a wall, or ſuch like, if near habitations; but in the woods, often in a buſh on or near the ground, or in a ſtump of a tree. This minute bird is found throughout Europe; and in England it defies the ſevereſt winters. Its ſong is much eſteemed, being, though ſhort, a pleaſing warble, and much louder than could be expected from its ſize: it continues throughout the year.

MOTALA, a town of Sweden, in E. Gothia.

* **MOTATION.** *n. ſ.* Act of moving. *Dict.*

MOTAZALITES. See Moatazalites.

MOT-BELL. See Mote-Bell.

MOTCHIAMIA, an iſland of Angola, in the Coanza.

MOTCHOU, a town of Aſia, in Corea.

(1.) * **MOTE.** *n. ſ.* [*mot*, Saxon; *atomus*, Lat.] A ſmall particle of matter; any thing proverbially little.—

You found his *mote*, the king your *mote* did ſee;
But I a beam do find in each of three. *Shak.*

—The little *motes* in the ſun do ever ſtir, though there be no wind. *Bacon.*

(2.) **Mote**, in law-books, ſignifies court or convention; as a ward-mote, burgh-mote, ſwainmote, &c.

(3.) **Mote** was alſo uſed for a fortreſs or caſtle; as *mota de Windſor*, &c.

(4.) **Mote** alſo denoted a ſtanding water to keep fiſh in; and ſometimes a large ditch encompaſſing a caſtle or dwelling-houſe.

(5.) * **Mote**, for *might*, or *muſt*, [*moet*, Dutch.] Obſolete.—

Moſt ugly ſhapes,
Such as dame Nature ſelf *mote* fear to ſee.
O ſhame, that ever ſhould ſo foul defects
From her moſt cunning hand eſcaped be. *F. Q.*

(6.) **Mote**, a town of Tirol, 9 m. S. of Tirol.

Mote-Bell, or **Mot-Bell**, *n. ſ.* the bell uſed by the Anglo-Saxons to call people together to the court. See Folkmote.

MOTERANA, a town of Naples, in Otranto.

(1.) * **MOTH.** *n. ſ.* [*moth*, Sax.] A ſmall winged inſect that eats cloths and hangings.—All the yarn Penelope ſpun in Ulyſſes's abſence, did but fill Ithaca full of *moths. Shak. Coriol.*—Every ſoldier in the wars ſhould do as every ſick man in his bed, waſh every *moth* out of his conſcience. *Shak.* —He as a rotten thing conſumeth, as a garment that is *moth* eaten. *Job* xiii. 28.—

Let *moths* through pages eat their way. *Juv.*

(2.) **Moth**, in zoology. See Phalæna.

(1.) **MOTHE Fenelon.** See Fenelon.

(2.) **Mothe Guyon**, Joanna Mary Bouriers de la, a French lady, memorable for her writings and ſufferings in the cauſe of Quietiſm. She was deſcended from a noble family, and born at Montargis in 1648. She tried to take the veil before ſhe was of age; but her parents obliged her to marry a gentleman to whom they had promiſed her. She was a widow at 28; when diſtinguiſhing herſelf as a Quietiſt, ſhe was confined for 8 months. She was diſcharged, but in 1695 was involved in the perſecution of the Abp. of Cambray, and thrown into the Baſtile; but nothing being made out againſt her, ſhe once more obtained her liberty in 1700; when ſhe retired to Blois, and lived in a manner which ſhowed her perſecutions were unmerited. She wrote, 1. *Cantiques Spirituels, ou Emblemes ſur l'Amour divin*; 5 vols. 2. *Reflexions ſur la vie interieure.* 3. *Diſcourſes Chretiennes*; 2 vols. 4. Her own Life; 3 vols. 5. *Opuſcles.* 6. Letters, &c. She died June 9th, 1717.

(3.) **Mothe le Vayer**, Francis de la, counſellor of ſtate, was born at Paris in 1588. He became ſo diſtinguiſhed by his writings, that he was conſidered as one of the beſt members of the French Academy, into which he was admitted in 1639. He was eſteemed by cardinals Richelieu and Mazarine, who beſtowed ſplendid titles and honourable poſts upon him. He was appointed preceptor to the duke of Anjou. He was a man of very regular conduct, and a philoſopher in his manners; yet was ſuſpected of having no religion. He was extremely afflicted at the loſs of his only ſon, who died when about 35 years of age. He married again, although then above 75 years old, and died in 1672, aged 84. His works, collected by his ſon, were dedicated to Cardinal Mazarine in 1653; but the beſt edition of them was that of Paris, 1669, dedicated to Lewis XIV. and conſiſting of 15 volumes in 12mo. His treatiſes concerning the education of the dauphin, and of pagan philoſophy, are moſt eſteemed.

(4.) **Mothe Mont Ravel**, a town of France, in the dep. of Dordogne; 18 miles SW. of Mucidan.

(5.) **Mothe St Heraye**, a town of France, in the dep. of Two Sevres; 4½ miles SE. of St Maixent.

(1.) * **MOTHER.** *n. ſ.* [*mothor*, Saxon; *moder*, Daniſh; *moeder*, Dutch.] 1. A woman that has borne a child; correlative to ſon or daughter.—

Let thy *mother* rather feel thy pride, than fear
Thy dangerous ſtoutneſs. *Shak. Coriolanus.*
Come ſit down every *mother's* ſon,
And rehearſe your parts. *Shakeſp.*
I had not ſo much of man in me,
But all my *mother* came into mine eyes,
And gave me up to tears. *Shak. Henry V.*

2. That which has produced any thing.—

Alas, poor country! It cannot
Be call'd our *mother*, but our grave. *Shak.*

—The reſemblance of the conſtitution and diet of the inhabitants to thoſe of their *mother* country, occaſion a great affinity in the popular diſeaſes. *Arbuthnot on Air.*—The ſtrongeſt branch leave for a ſtandard, cutting off the reſt cloſe to the body of the *mother* plant. *Mort. Huſb.* 3. That which has preceded in time: as, a *mother* church to chapels. 4. That which requires reverence and obedience. —The good of *mother* church, as well as that of civil ſociety, renders a judicial practice neceſſary. *Ayliffe's*

Ayliffe's Parergon. 5. Hyſterical paſſion; ſo called, as being imagined peculiar to women.—This ſtopping of the ſtomach might be the *mother*; forasmuch as many were troubled with *mother* fits, although few returned to have died of them. *Graunt's Bills*. 6. A familiar term of addreſs to an old woman; or to a woman dedicated to religious auſterities. 7. [*Moeder*, Dutch, from *modder*, mud.] A thick ſubſtance concreting in liquors; the lees or ſcum concreted.—If the body be liquid, and not apt to putrefy totally, it will caſt up a *mother*, as the *mothers* of diſtilled waters. *Bacon*.

Potted fowl, and fiſh come in ſo faſt,
That ere the firſt is out the ſecond ſtinks,
And mouldy *mother* gathers on the brinks. *Dryd.*

8. [more properly *modder*; *modde*, Dutch.] A young girl. Now totally obſolete.—

A ſling for a *mother*, a bow for a boy,
A whip for a carter. *Tuſſer's Huſbandry*.

(2.) * **MOTHER.** *adj.* Had at the birth; native.—

For whatſoever *mother* wit and art
Could work, he put in proof. *Hubbard's Tale.*
Where did you ſtudy all this goodly ſpeech?
—It is extempore, from my *mother* wit. *Shak.*

—Boccace lived in the ſame age with Chaucer, had the ſame genius, and followed the ſame ſtudies: both writ novels, and each of them cultivated his *mother* tongue. *Dryden*.

At length divine Cecilia came,
Inventreſs of the vocal frame,
And added length to ſolemn ſounds,
With nature's *mother* wit. *Dryden*.

* *To* **MOTHER.** *v. n.* To gather concretion.—

They oint their naked limbs with *mother'd* oil.
Dryden.

* **MOTHERHOOD.** *n. ſ.* [from *mother*.] The office or character of a mother.—

Thou ſhalt ſee the bleſſed mother maid
Exalted more for being good,
Than for her intereſt of *motherhood*. *Donne*.

(1.) * **MOTHER IN LAW.** *n. ſ.* [*mother* and *law*.] The mother of a huſband or wife.—I am come to ſet at variance the daughter in law againſt the *mother in law*. *Matth.* x. 35.

(2.) **MOTHER IN LAW.** See **AFFINITY**, § 3.

* **MOTHERLESS.** *adj.* [from *mother*.] Deſtitute of a mother; orphan of a mother.—I might ſhew you my children, whom the rigour of your juſtice would make complete orphans, being already *motherleſs*. *Waller's Speech to the Houſe of Commons*.—My concern for the three poor *motherleſs* children obliges me to give you this advice. *Arb.*

(1.) * **MOTHERLY.** *adj.* [from *mother* and *like*.] Belonging to a mother; ſuitable to a mother.—They can owe no leſs than child-like obedience to her that hath more than *motherly* power. *Hooker*.—They termed her the great mother, for her *motherly* care in cheriſhing her brethren whilſt young. *Raleigh*.

Within her breaſt though calm, her breaſt
though pure,
Motherly cares and fears got head, and rais'd
Some troubled thoughts. *Milt. Par. Reg.*

—When I ſee the *motherly* airs of my little daughters when playing with their puppets, I cannot but flatter myſelf that their huſbands and children will be happy in the poſſeſſion of ſuch wives and mothers. *Spectator*.—She was a truly good woman, and had a ſincere *motherly* love for her ſon John. *Arbuthnot*.

(2.) * **MOTHERLY.** *adv.* [from *mother*.] In manner of a mother.—

Th' air doth not *motherly* ſit on the earth,
To hatch her ſeaſons, and give all things birth.
Donne.

(1.) * **MOTHER OF PEARL.** A kind of coarſe pearl; the ſhell in which pearls are generated.—

Whoſe hilt was burniſh'd gold, and handle ſtrong
Of *mother-pearl*. *Fairy Queen*.

—They were of onyx, ſometimes of *mother of pearl*. *Hakewell*.

(2.) **MOTHER OF PEARL.** See **MYTILUS**. N° 6.

(1.) * **MOTHER OF THYME.** *n. ſ.* [*ſerpyllum*, Latin.] It hath trailing branches, which are not ſo woody and hard as thoſe of thyme, but in every other reſpect is the ſame. *Miller*.

(2.) **MOTHER OF THYME.** See **THYMUS**.

(1.) **MOTHERWORT.** *n. ſ.* [*cardiaca*, Latin.] A plant.

(2.) **MOTHERWORT.** See **LEONURUS**.

* **MOTHERY.** *adj.* [from *mother*.] Concreted; full of concretions; dreggy; feculent: uſed of liquors.

(1.) * **MOTHMULLEIN.** *n. ſ.* [*blattaria*, Lat.] A plant. *Miller*.

(2.) * **MOTH-MULLEIN.** See **VERBASCUM**.

* **MOTHWORT.** *n. ſ.* [*moth* and *wort*.] An herb.

* **MOTHY.** *adj.* [from *moth*.] Full of moths. —His horſe hipp'd with an old *mothy* ſaddle, the ſtirrups of no kindred. *Shak. Taming of the Shrew.*

MOTIERS, a town of Switzerland in Neufchatel, 13 miles SW. of Neufchatel.

(1.) * **MOTION.** *n. ſ.* [*motion*, French; *motio*, Latin.] 1. The act of changing place: oppoſed to *reſt*.

Immediate are the acts of God, more ſwift
Than time or *motion*. *Milton*.
The ſedentary Earth,
Serv'd by more noble than herſelf, attains
Her end without leaſt *motion*. *Milton*.

2. That part of philoſophy which conſiders bodies as acting on each other; to which belong the laws of *motion*. 3. Animal life and action.—

Devoid of ſenſe and *motion*. *Milton*.
The ſoul
O'er miniſterial members does preſide,
To all their various provinces divide,
Each member move, and ev'ry *motion* guide.
Blackmore.

4. Manner of moving the body; port: gait.—

Speaking or mute, all comelineſs and grace
Attend thee, and each word, each *motion* form.
Milton.

Virtue too, as well as vice, is clad
In fleſh and blood ſo well, that Plato had
Beheld, what his high fancy once embrac'd,
Virtue with colours, ſpeech and *motion* grac'd.
Waller.

5. Change of poſture; action—

By quick inſtinctive *motion* up I ſprung. *Milt.*
Encourag'd thus ſhe brought her younglings
nigh,
Watching the *motions* of her patron's eye. *Dryd.*

6. Military march, or remove.—

See the guards
By me encamp'd on yonder hill, expect
Their *motion*. *Milton.*

7. Agitation; inteſtine action.—

My womb
Prodigious *motion* felt, and rueful throes. *Milt.*
Ceaſe, ceaſe thou foaming ocean,
For what's thy troubl'd *motion*
To that within my breaſt? *Gay.*

8. Direction; tendency.—

In our proper *motion* we aſcend. *Milton.*

9. Impulſe communicated.—Whether that *motion*, vitality, and operation, were by incubation, or how elſe, the manner is only known to God. *Raleigh.*—This is the great wheel to which the clock owes its *motion*. *Decay of Piety.*

Love wakes the ſleepy vigour of the ſoul,
And bruſhing o'er, adds *motion* to the pool. *Dryd.*

10. Tendency of the mind; thought impreſſed.—Let a good man obey every good *motion* riſing in his heart, knowing that every ſuch *motion* proceeds from God. *South.* 11. Propoſal made.—What would you with me? Your father and my uncle have made *motions*. *Shakeſpeare.*—Yes, I agree, and thank you for your *motion*. *Shak.* 12. [In old language.] A puppet ſhow.—He compaſſed a *motion* of the prodigal ſon, and married a tinker's wife, within a mile where my land lies. *Shakeſpeare.*

(2.) MOTION, ANIMAL, that which is performed by animals at the command of the mind or will.—Though all the motions of animals, whether voluntary or involuntary, are performed by means of the muſcles and nerves, yet neither theſe nor the ſubtle fluid which reſides in them are to be accounted the ultimate ſources of animal motion. They depend entirely upon the mind for thoſe motions which are properly to be accounted *animal.* All the involuntary motions, ſuch as thoſe of the blood, the heart, muſcles, organs ſubſervient to reſpiration and digeſtion, &c. are to be claſſed with thoſe of vegetables: for though no vegetables have them in ſuch perfection as animals, there are yet traces of them to be found evidently among vegetables, and that ſo remarkably, that ſome have imagined the animal and vegetable kingdoms to approach each other ſo nearly that they could ſcarce be diſtinguiſhed by a philoſophic eye. See MUSSEL. Though the motions of animals, however, depend on the action of the mind or of the will, external objects ſeem originally to have the command of the mind itſelf; for unleſs an animal perceive ſomething, it will not be inclined to act. By means of the ideas once received; indeed, and retained in the memory, it acquires a ſelf-moving power, independent of any object preſent at the time, which is not the caſe with vegetables; for however they may act from a preſent impulſe, their motions never appear to be derived from any ſource which may not be accounted ſtrictly mechanical. According to ſome, motion is the cauſe of ſenſation itſelf; and indeed it ſeems very probable that the motions of that ſubtle fluid, called LIGHT or ELECTRICITY, in our bodies, always accompany our ſenſations; but whether theſe be the *cauſe*, or only the *medium* of ſenſe, cannot be diſcovered. Though all animals are endowed with a power of voluntary motion, yet there is a very great variety in the degrees of that power; to determine which no certain rules can be aſſigned; neither can we, from the ſituation and manner of life of animals, derive any probable reaſon why the motion of one ſhould differ ſo very much from that of another. This difference does not ariſe from their ſize, their ferocity, their timidity, nor any other property that we can imagine. The elephant, though the ſtrongeſt land animal, is by no means the ſloweſt in its motions; the horſe is much ſwifter than the bull, though there is not much difference in their ſize; a grey-hound is much ſwifter than a cat, though the former be much larger, and though both live in the ſame manner, *viz.* by hunting. Among inſects the ſame unaccountable diverſity is obſerveable. This very remarkable circumſtance ſeems not even to depend on the range which animals are obliged to take in order to procure food for themſelves. Of all animals the ſhell-fiſh move the ſloweſt, inſomuch that ſome have ſuppoſed them to be entirely deſtitute of loco-motive powers; and muſcles particularly are denied to have any faculty of this kind. Every one knows that theſe animals can open and ſhut their ſhells at pleaſure; and it cannot eſcape obſervation, that in every muſcle there is a fleſhy protuberance of a much redder colour than the reſt. This has been thought to be a tongue or proboſcis, by which the animal takes in its food; but is in reality the inſtrument of its motion from place to place. This protuberance is divided into two lobes, which perform the office of feet. When the river muſſel is inclined to remove from its ſtation, it opens its ſhell, thruſts out this protuberance, and digs a furrow in the ſand: and into this furrow, by the action of the ſame protuberance, the ſhell is made to fall in a vertical poſition. It is recovered out of this into the former horizontal one, by puſhing back the ſand with the ſame tentacula, lengthens the furrow, and thus the animal continues its journey by a continual turning topſy turvy. Marine muſſels perform their motions in the ſame manner, and by ſimilar inſtruments. In general, they are firmly attached to rocks or ſmall ſtones by threads about two inches long, which are ſpun from a glutinous ſubſtance in the protuberance already mentioned; theſe are called, in Scotland, the *beards* of muſſels, and are thought to be the cauſe of the fatal diſorders which ſometimes attend the eating of muſſels. See MYTILUS, No. 4. Other animals which dwell in bivalved ſhells, perform their motions by a kind of leg or foot; which, however, they can alter into almoſt any figure they pleaſe. By means of this leg they cannot only ſink into the mud, or riſe out of it at pleaſure, but can even leap from the place where they are; and this can be done by the limpet, which people are apt to imagine one of the moſt ſluggiſh animals in nature.—When this creature is about to make a ſpring, it ſets its ſhell on edge, as if to diminiſh friction; then, ſtretching out the leg as far as poſſible, it makes it embrace a portion of the ſhell, and by a ſudden movement, ſimilar to that of a ſpring let looſe, it ſtrikes the earth with its leg, and actually leaps to a conſiderable diſtance. The ſpout or razor fiſh, is ſaid to be incapable of moving forward horizontally on the ſurface; but it digs a hole ſometimes 2 feet deep in the ſand, in which it can aſcend or deſcend at pleaſure. The leg, by which it performs all its movements, is fleſhy, cylindrical, and pretty long; and the animal can at pleaſure make it aſſume the form of a ball. When lying on the ſurface of the ſand, and about to ſink into it, the leg is extended from the inferior end of the ſhell, and makes the extremity of it take on the form of a ſhovel, ſharp on each ſide, and terminating in a point. With this inſtrument the animal makes a hole in the ſand; after which it advances the leg ſtill farther into it, makes it aſſume the form of a hook, and with this, as a fulcrum, it obliges the ſhell to deſcend into the hole. This operation is continued until the whole ſhell be covered; and when the animal wiſhes to regain the ſurface, it makes the extremity of the leg to aſſume the form of a ball, and makes an effort to extend it. The ball, however, prevents any farther deſcent, and the reaction of the muſcular effort raiſes up the whole ſhell, which operation is continued until it reaches the ſurface; and it is ſurpriſing with what facility theſe motions are accompliſhed by an animal ſeemingly ſo little qualified to move at all. Another particularity in this fiſh is, that though it lives among ſalt water, it abhors ſalt ſo much that when a little is thrown into its hole, it inſtantly leaves it. But it is ſtill more remarkable, that if you once take hold of the ſpout-fiſh, and then allow it to retire into its hole, it cannot then be driven out by ſalt; though unleſs it be taken hold of by the hand, the application of ſalt will make it come to the ſurface as often as you pleaſe. See SOLEN. All other ſhell-fiſh, even thoſe apparently the moſt ſluggiſh and deſtitute of any apparatus for motion, are found to be furniſhed with ſuch inſtruments as enable them to perform all thoſe movements for which they have any occaſion. Thus the ſcallop, a well-known animal, inhabiting a bivalved ſhell, can both ſwim upon the ſurface of water and move upon land. When it happens to be deſerted by the tide, it opens its ſhell to the full extent, and ſhutting it again with a ſudden jerk, the reaction of the ground gives ſuch an impulſe to the whole, that it ſometimes ſprings 5 or 6 inches from the ground; and by a continued repetition of this action, it gradually tumbles forward until it regains the water. Its method of ſailing is ſtill more curious. Having attained the ſurface of the water by means unknown to us, it opens the ſhell, and puts one half above water, the other with the body of the animal in it remaining below. Great numbers of them are thus frequently ſeen ſailing in company, with their ſhells ſticking up above water, when the weather is fine, and the wind acting upon them as ſails; but on the leaſt alarm they inſtantly ſhut their ſhells, and all ſink to the bottom together. See PECTEN. The oyſter has generally been ſuppoſed one of the moſt ſluggiſh animals in nature, and totally incapable of voluntary motion; but from the reſearches of the Abbé Dicquemarre, this opinion ſeems to be erroneous. The oyſter, like many other bivalved ſhell-fiſh, has a power of ſquirting water out from its body; and this property may eaſily be obſerved by putting ſome of them into a plate with as much ſea-water as will cover them. The water is ejected with ſo much force, as not only to repel the approach of ordinary enemies, but to move the whole animal backwards or ſideways, in a direction contrary to that in which the water was ejected. It has been alſo ſuppoſed, that oyſters are deſtitute of ſenſation; but M. Dicquemarre has ſhown, that they not only poſſeſs ſenſation, but that they are capable of deriving knowledge from experience. When removed from ſuch places as are entirely covered with the ſea, when deſtitute of experience, they open their ſhells and die in a few days; but if they happen to eſcape this danger, and the water covers them again, they will not open their ſhells again, but keep them ſhut, as if warned by experience to avoid a danger ſimilar to what they formerly underwent. See OSTREA. The motions of the ſea-urchin are perhaps more curious and complicated than thoſe of any other animal. It inhabits a beautiful multivalved ſhell, divided into triangular compartments, and covered with great numbers of prickles; from which laſt circumſtance it receives the name of *ſea-urchin* or *ſea hedge-hog*. The triangles are ſeparated from one another by regular belts, perforated by a great number of holes, from every one of which iſſues a fleſhy horn ſimilar to that of a ſnail, and capable of moving in a ſimilar manner. The principal uſe of theſe horns ſeems to be to fix the animal to rocks or ſtones, though it likewiſe makes uſe of them in progreſſive motion. By means of theſe horns and prickles, it is enabled to walk either on its back or its belly; but it moſt commonly makes uſe of thoſe which are near the mouth. Occaſionally it has a progreſſive motion by turning round like a wheel. Thus, ſays Mr Smellie, (in his *Philoſ. of Nat. Hiſt.*) the ſea-urchin furniſhes an example of an animal employing many thouſand limbs in its various movements. The reader may try to conceive the number of muſcles, fibres, and other apparatus which are requiſite to the progreſſive motion of this little animal. Thoſe animals called *ſea-nettles* or *meduſæ*, though extremely ſlow in their motions, are nevertheleſs evidently capable of moving at pleaſure from place to place. The variety of their figure is ſuch, that it is difficult to aſſign them any determinate figure whatever. See MEDUSA, § II, Nº 1—5. In general, however, they reſemble a truncated cone, the baſe of which is applied to the rock to which they adhere. Their colours are various, whitiſh, brown, red, or greeniſh: the mouth is very large; and when opened appears ſurrounded with filaments reſembling the horns of ſnails, which being diſpoſed in three rows around it, give the animal the appearance of a flower, (ſee ACTINIA); and through every one of theſe the animal has the power of ſquirting the ſea-water. The ſtructure of theſe animals is extremely ſingular; conſiſting all of one organ, *viz.* a ſtomach. When ſearching for food, they extend their filaments, and quickly entangle any ſmall animals that come within their reach. The prey is inſtantly ſwallowed, and the mouth ſhut cloſe upon it like a purſe; in which ſtate it remains for many days before the nutritive parts are extracted. The animal, though ſcarcely an inch or an inch and a half in diameter, is nevertheleſs ſo dilatable, that it can ſwallow large whelks and muſſels, the ſhells of which are thrown out by the mouth, after the nutritive parts have been exhauſted. Sometimes the ſhell is too large to be voided this way; in which caſe the body of the animal ſplits, and the ſhell is voided through the opening, which in a ſhort time heals up again. The progreſſive motion of this creature is ſo ſlow that it reſembles that of the hour-hand of a clock, and is performed by means of innumerable muſcles placed on the outſide of the body. All theſe are tubular, and filled with a fluid, which makes them project like prickles. On occaſion it can likewiſe looſen the baſe of the cone from the rock, and inverting its body, move by means of the filaments already mentioned, which ſurround the mouth; but even the motion performed in this manner is almoſt as ſlow as the other. Some animals move backwards, apparently with the ſame facility that they do forwards, and that by means of the ſame inſtruments which move them forward. The common houſe fly exhibits an inſtance of this, and frequently employs this retrograde motion in its ordinary courſes; though we cannot know the reaſon of its employing ſuch an extraordinary method. Another remarkable inſtance is given by Mr Smellie in the *maſon-bee*. This is one of the ſolitary ſpecies, and has its name from the mode of conſtructing its neſt with mud or mortar. Externally this neſt has no regular appearance, but at firſt ſight is taken for a quantity of dirt adhering to the wall; though the internal part be furniſhed with cells in the ſame regular manner with the neſts of other inſects of the bee kind. When this bee leaves its neſt, another frequently takes poſſeſſion of it; in which caſe a battle never fails to enſue on the return of the real proprietor. The diſpute is decided in the air; and each party endeavours to get above the other, as birds of prey are wont to do in order to give a downward blow. The undermoſt one, to avoid the ſtroke, inſtead of flying forward or laterally, always flies backward. The encounter is ſo violent, that when they ſtrike, both parties fall to the ground.

(3.) MOTION, DEFINITIONS OF. Motion is now generally conſidered as incapable of definition, being a ſimple idea or notion received by the ſenſes. The ancients, however, thought differently. Some of them defined it to be a paſſage out of one *ſtate* into another; which conveys no idea to him who is ignorant of the nature of motion. The peripatetic definition, that it is a *change* from *capacity* to *energy*, &c. is wholly unintelligible, as well as their celebrated diviſion of motion into four claſſes, belonging to the three categories, *quality*, *quantity*, and *where*. The Carteſians, too, among the moderns, pretend to define motion, by calling it a paſſage or removal of one part of matter, out of the neighbourhood of thoſe parts to which it is immediately contiguous, into the neighbourhood of others. See METAPHYSICS, *Sect.* XII, § 59.

(4.) MOTION, DISTINCTIONS OF. The diſtinctions of motion into different kinds have been no leſs various, and no leſs inſignificant, than the ſeveral definitions of it. The moderns who reject the peripatetic diviſion of motion into four claſſes, yet conſider it themſelves as either *abſolute* or *relative*. Thus we are told that "*abſolute motion* is the change of abſolute *place*, and that its celerity muſt be meaſured by the quantity of *abſolute ſpace* which the moving body runs through in a given time." "*Relative motion*, on the other hand, is a mutation of the *relative* or *vulgar place* of the moving body, and has its celerity eſtimated by the quantity of *relative ſpace* run through." Now it is obvious, that this diſtinction conveys no ideas, without a farther explanation of the terms by which it is expreſſed; but that explanation is impoſſible to be given. Thus, before we can underſtand what *abſolute motion* is, we muſt underſtand what is meant by *abſolute place*: but abſolute place is a contradiction; for all *place* is *relative*, and conſiſts in the poſitions of different bodies with regard to one another.

(5.) MOTION, HYPOTHESES OF DES-CARTES AND NEWTON, AS TO THE SOURCE OF. Leaving therefore theſe unintelligible diſtinctions, we now come to conſider a queſtion ſtill of a very abſtruſe nature, but much agitated among philoſophers, viz. What is the original ſource of motion in the creation? Is it natural to matter? or are we to aſcribe it to the immediate and continual agency of ſome *immaterial* being? The former has been ſtrenuouſly argued by the Carteſians, and the latter by the Newtonians. The arguments of the former, founded upon the chimerical hypotheſis of vortices and the original conſtruction of matter, were evidently inconcluſive; and the hypotheſis of Sir Iſaac Newton, who aſſerted that it was naturally *incapable* of motion, appeared more probable. To account for the quantity of motion in the univerſe, therefore, it became neceſſary to have recourſe either to the Deity, or to ſome ſubordinate ſpiritual agent; and this became the more neceſſary, as the doctrine of an abſolute vacuum in the celeſtial ſpaces, that is, throughout the incomparably greateſt part of the creation, was one of the fundamental maxims of the ſyſtem. As it was abſolutely denied that matter exiſted in theſe ſpaces, and it was plain that the celeſtial bodies affected one another at immenſe diſtances, the powers of attraction and repulſion were naturally called in as the ſources of motion, by their impulſe upon inert and ſluggiſh matter. Theſe being admitted, a ſpeculation enſued concerning their nature. *Spiritual*, it was confeſſed, they were; but whether they were to be accounted the immediate action of the divine Spirit himſelf, or that of ſome ſubordinate and inferior ſpirit, was a matter of no little diſpute. Sir Iſaac Newton, towards the latter part of his life, began to relax ſomewhat of the rigidity of his former doctrine; and allowed that a very ſubtle medium, which he called *æther*, might be the cauſe of attraction and repulſion, and thus of the whole phenomena of nature. Since his time the multitude of diſcoveries in ELECTRICITY, the ſimilarity of that fluid to FIRE and LIGHT, with the vaſt influence it has on every part of the creation with which we are acquainted, have rendered it very probable that the æther mentioned by Sir Iſaac is no other than the element of fire, " the moſt ſubtle and elaſtic of all bodies, which ſeems to pervade and expand itſelf throughout the whole univerſe. Electrical experiments ſhow that this mighty agent is every where preſent, ready to break forth into action if not reſtrained and governed with the greateſt wiſdom. Being always reſtleſs and in motion, it actuates and enlivens the whole viſible maſs; is equally fitted to produce and to deſtroy; diſtinguiſhes the various ſtages of nature, and keeps up the perpetual rounds of generations and corruptions, pregnant with forms which it conſtantly ſends forth and reſorbs. So quick in its motions, ſo ſubtle and penetrating in its nature, ſo extenſive in its effects, it ſeemeth no other than the vegetative ſoul or vital ſpirit of the world." (*Siris*, N° 153.)

(6.) **MOTION, HYPOTHESES OF MR JONES AND BP. BERKELEY, RESPECTING.** Mr Jones, in his *Eſſay on the Firſt Principles of Natural Philoſophy*, inſiſts, that the motion of the planets round the ſun, as well as round their own axis, is to be attributed to the continual agency of this fluid, under its two forms of elementary fire and pure air. As fire and light, we know that it ruſhes with an inconceivable rapidity from the body of the ſun, and penetrates every corporeal ſubſtance, exerting itſelf ſometimes with ſuch force as nothing with which we are acquainted is able to reſiſt. If it be indeed a fact, that this elementary fire, or principle of light and heat, afterwards cools, and becomes pure air, there cannot be a doubt, but that under ſuch a form it will return with great force, though ſurely in a ſomewhat different direction, towards the ſun, forming a vortex, in which the planets are included, and by which they muſt of courſe be carried round the centre. Mr Jones does not ſuppoſe that the air into which the principle of light and heat is converted, is of ſo groſs a nature as our atmoſphere. He rather conſiders it as cool æther, juſt as he repreſents light to be æther heated: but he maintains, that this æther, in its aerial form, though not fit for human reſpiration, is a better *pabulum* of fire than the air which we breathe. This theory is exceedingly plauſible; and the author ſupports it by many experiments. He has not, indeed, convinced us, that the ſolar light is converted or convertible into pure air; but he has, by juſt reaſoning from undoubted facts, proved that the whole expanſe of heaven, as far as comets wander, is filled not only with light, which is indeed obvious to the ſenſes, but alſo with a fluid, which, whatever it may be called, ſupplies the place of air in feeding the fire of theſe ignited bodies. That the motion of the heavenly bodies ſhould reſult from the perpetual agency of ſuch a medium, appears to us a much more rational hypotheſis, than that which makes them act upon each other at immenſe diſtance through empty ſpace. But the hypotheſis is by no means ſo complete a ſolution of the phenomena as ſome of its fond admirers pretend to think it. This fluid, whether called æther, heat, light, or air, is ſtill material; and the queſtion returns upon him who imagines that it is ſufficient to account for gravitation, repulſion, magnetiſm, and coheſion, &c. "What moves the fluid itſelf, or makes the parts of which it is compoſed cohere together?" However widely it may be extended, it is incapable of poſitive infinity; and therefore *may be* divided into parts ſeparated from each other; ſo that it muſt be held together by a foreign force, as well as a ball of lead, or a piece of wax. As matter is not eſſentially active, the motion of this æther, under both its forms, muſt likewiſe be conſidered as an effect, for which we do not think that any propelling power in the body of the ſun can be admitted as a ſufficient cauſe. For how comes the ſun to poſſeſs that power, and what makes the fluid return to the ſun? We have no notion of power, in the proper ſenſe of the word, but an intelligence and volition: and unleſs by the ignorant idolaters and worſhippers of fire, we are certain that the ſun was never ſuppoſed to be intelligent. Bp. Berkeley, who admits of light or æther as the inſtrumental cauſe of all corporeal motion, gets rid of this difficulty, by ſuppoſing, with the ancients, that this powerful agent is animated. " According to the Pythagoreans and Platonics (ſays his Lordſhip, in his *Siris*, N° 277.) there is a life infuſed throughout all things; the πυρ νοερον, πυρ τεχνικον, an intellectual and artificial fire, and inward principle, animal ſpirit, or natural life, producing and forming within, as art doth without; regulating, moderating, and reconciling the various motions, qualities, and parts of this mundane ſyſtem. By virtue of this life, the great maſſes are held together in their ordinary courſes, as well as the minuteſt particles governed in their natural motions, according to the ſeveral laws of attraction, gravity, electricity, magnetiſm, &c. This life or animal ſpirit ſeems to be the ſame thing which Cudworth calls plaſtic nature. (See PLASTIC NATURE.) We ſhall therefore diſmiſs it at preſent, with juſt admitting the truth of the Biſhop's poſition, " that if nature be ſuppoſed the life of the world, animated by one ſoul, compacted into one frame, and directed or governed in all its parts by one ſupreme and diſtinct intelligence, this ſyſtem cannot be accuſed of atheiſm, though perhaps it may of miſtake or impropriety."

(7.) **MOTION, HYPOTHESES OF MR YOUNG, &c. RESPECTING.** A theory of motion ſomewhat ſimilar to that of Berkeley, though in ſeveral reſpects different from it, was not many years ago ſtated with great clearneſs, and ſupported with much ingenuity, in *An Eſſay on the Powers and Mechaniſm of Nature*, intended to improve, and more firmly eſtabliſh, the grand ſuperſtructure of the Newtonian ſyſtem. Mr Young, the author of the eſſay, admits, with moſt other philoſophers of the preſent age, that body is compoſed of atoms which are impenetrable to each other, and may be denominated ſolid. Theſe atoms, however, he does not conſider as primary and ſimple elements, incapable of reſolution into principles; but thinks that they are formed by certain motions of the parts of a ſubſtance immaterial and eſſentially active. As this notion is uncommon, and the offspring of a vigorous mind, it may be conſidered under the article PLASTIC NATURE. The author in his theory of motion, attributes both the origin and the continuance of motion to the agency of this elementary ſubſtance pervading the moſt ſolid atoms of the denſeſt bodies. Of every body and every atom he holds the conſtituent principles to be eſſentially active: but thoſe principles act in ſuch a manner as to counterbalance each other; ſo that the atom or body conſidered as a whole is inert, unleſs in ſo far as it reſiſts the compreſſion or ſeparation of its parts. No body or atom can of itſelf begin to move, or continue in motion for a ſingle inſtant: but being pervious to the active ſubſtance, and coaleſcing with it, that ſubſtance, when it enters any body, carries it along with it, till, meeting ſome other body in the way, either the whole of the active ſubſtance lodged in the former body paſſes into the obſtacle, in which caſe the impelling body inſtantly ceaſes to move; or elſe part of that ſubſtance paſſes into the obſtacle, and part remains in the impelling body; and in this caſe both bodies are moved with a velocity in proportion to the quantity of matter which each contains, combined with the quantity of active ſubſtance by which they are reſpectively penetrated. In order to pave the way for his proof of the exiſtence of one uniform active ſubſtance, he obſerves, that "*change* being an eſſentially conſtituent part of motion, and change implying action, it follows that *all motion implies action, and depends on an active cauſe*. Every motion (he continues) has a beginning, a middle, and an end. The beginning is a change from reſt to motion; the middle is a continuance in motion; the end is a change from motion to reſt." He then proceeds to ſhow, that "the beginning of motion is by an action begun; the continuance of motion by an action continued; and the end of motion by a ceſſation of action." But all ſuch arguments, however ingeniouſly ſtated, ſeem to be only a play upon words, or rather a "darkening of counſel by words without knowledge." We will not therefore lengthen this article by any farther quotation from Mr Young's theory of motion. To the philoſopher who conſiders experiment as the only teſt of truth, and who in all his inquiries employs his hands more than his head, we are perſuaded, that it will appear in no better light than as "the baſeleſs fabric of a viſion." Even to the intellectual philoſopher, who reliſhes diſquiſitions in METAPHYSICS, we are afraid that ſuch an "ACTIVE SUBSTANCE" as the author contends for, will appear as inadequate to the production of the phenomena of gravitation and repulſion as the material æther of Mr Jones and his followers. A being void of intelligence, whether it be material or immaterial, quieſcent or motive, cannot be the ſubject of law, in the proper ſenſe of the word. The laws of which Mr Young ſpeaks as neceſſary to regulate the motions of the active ſubſtance, muſt be mere *forces*, applied by ſome extrinſic and ſuperior power. And ſince "motion, as it is *eſſential* to the active ſubſtance, is power without direction, agency without order, activity to no end; ſince it is of ſuch a nature, that from its unguided agitations there could reſult neither connection, order, nor harmony; it follows that thoſe extrinſic forces muſt be *perpetually* applied, becauſe what is *eſſential* to any ſubſtance can never be deſtroyed or changed ſo long as the ſubſtance itſelf remains. Forces producing order out of confuſion, can be applied only by a being poſſeſſed of intelligence; and if the immediate and perpetual agency of an intelligent being be neceſſary to regulate the motions of the active ſubſtance, that ſubſtance itſelf may be thought ſuperfluous, and its very exiſtence be denied. *Entia non ſunt multiplicanda abſque neceſſitate*, is a rule of philoſophiſing which every man of ſcience acknowledges to be juſt. And it will hardly be denied, that the immediate and perpetual agency of an intelligent being, upon Mr Jones's ætherial fluid, or even upon the matter of ſolid bodies themſelves, would be capable of producing every kind of motion without the inſtrumentality of a ſubſtance which is neither mind nor matter. Such, we conceive, are the objections which our metaphyſical readers may make to this theory. Part of their force, however, will perhaps be removed by the ingenious manner in which our author analyſes matter into an immaterial principle. But ſo much of it remains, that we are inclined to believe that no mechanical account can be given of the motions of the heavenly bodies, the growth of plants, and various other phenomena, which are uſually ſolved by attraction and repulſion. In the preſent age, philoſophers in general are ſtrangely averſe from admitting on any occaſion the agency of mind: yet as every effect muſt have a cauſe, it is ſurely not irrational to attribute ſuch effects as mechaniſm cannot produce, to the operation either of intelligence or inſtinct. To ſuppoſe the Deity the immediate agent in the great motions of the univerſe, has been deemed impious; and it muſt be confeſſed that very impious concluſions have been deduced from that principle. But there is ſurely no impiety in ſuppoſing, with the excellent Bp. Berkeley, that the fluid which is known to pervade the ſolar ſyſtem, and to operate with reſiſtleſs force, may be animated by a powerful mind, which acts inſtinctively for ends of which itſelf knows nothing. For the exiſtence of ſuch a mind, no other evidence, indeed, can be brought than what is afforded by a very ancient and very general tradition, and by the impoſſibility of accounting for the phenomena upon principles of mere mechaniſm. Perhaps ſome of our more pious readers may be inclined to think that the Supreme Being has committed the immediate government of the various planetary ſyſtems to powerful *intelligences*, or ANGELS, who as his miniſters, direct their motions with wiſdom and foreſight. Such an opinion is certainly not abſurd in itſelf; and it is countenanced by an ancient writer, (Pſal. civ.) who, though not known by the name of a philoſopher, knew as much of the matter as any founder of the moſt celebrated ſchool. On the whole, if this queſtion can be ſolved by natural means, it muſt be upon the principles of Newton; for "in every caſe where quantities and relations of quantities are required, it is the province of mathematics to ſupply the information ſought;" and all philoſophers agree that Sir Iſaac's doctrine of the compoſition and reſolution of motion, though, in what reſpects the heavenly bodies, it may have no phyſical reality, is ſo mathematically juſt, as to be the only principle from which the quantity of motion, or the force of powers, can in any caſe be computed. If we chooſe to anſwer the queſtion, by ſaying that the motion left is reſtored by the interpoſition of the Deity, then we might as well have had recourſe to him at firſt, and ſay that he alone is the principle of motion throughout the creation. Before we are reduced to this dilemma, however, it is neceſſary, in the firſt place, to inquire whether there is or can be any real diminution of the quantity of motion throughout the univerſe? In this queſtion the Carteſians take the negative ſide; and maintain, that the Creator at the beginning impreſſed a certain quantity of motion on bodies, and that under ſuch laws as that no part of it ſhould be loſt, but the ſame portion of motion ſhould be conſtantly preſerved in matter: and hence they conclude, that if any moving body ſtrike on any other body, the former loſes no more of its motion than it communicates to the latter. Sir Iſaac Newton takes the contrary ſide, and argues in the following manner: “From the various compoſitions of two motions, it is manifeſt there is not always the ſame quantity of motion in the world; for if two balls, joined together by a ſlender wire, revolve with an uniform motion about their common centre of gravity, and at the ſame time that centre be carried uniformly in a right line drawn in the plane of their circular motion the ſum of the motions of the two balls, as often as they are in a right line, drawn from their common centre of gravity, will be greater than the ſum of their motions when they are in a line perpendicular to that other. Whence it appears, that motion may be both generated and loſt. But, by reaſon of the tenacity of fluid bodies, and the friction of their parts, with the weakneſs of the elaſtic power in ſolid bodies, nature ſeems to incline much rather to the deſtruction than the production of motion; and in reality motion becomes continually leſs and leſs.—For bodies which are either ſo perfectly hard or ſo ſoft as to have no elaſtic power, will not rebound from each other; their impenetrability will only ſtop their motion. And if two ſuch bodies equal to one another be carried with equal but oppoſite motions, ſo as to meet in a void ſpace, by the laws of motion they muſt ſtop in the very place of concourſe, loſe all their motion, and be at reſt for ever, unleſs they have an elaſtic power to give them a new motion. If they have elaſticity enough to make them rebound with one fourth, one half, or three fourths, of the force they meet with, they will loſe three fourths, one half, or one fourth of their motion. And this is confirmed by experiments; for if two equal pendulums be let fall from equal heights, ſo as to ſtrike full upon each other; if thoſe pendulums be of lead or ſoft clay, they will loſe all, or almoſt all, their motion; and if they be of any elaſtic matter, they will only retain ſo much motion as they receive from their elaſtic power. Motion, therefore, being thus, in the opinion of our celebrated author, *loſt*, or *abſolutely deſtroyed*, it is neceſſary to find ſome cauſe by which it may be renewed. Such renovation Sir Iſaac attributes to *active* principles; for inſtance, “the cauſe of gravity, whereby the planets and comets preſerve their motions in their orbits, and all bodies acquire a great degree of motion in falling; and the cauſe of fermentation, whereby the heart and blood of animals preſerve a perpetual warmth and motion, the inner parts of the earth are kept perpetually warmed; many bodies burn and ſhine, and the ſun himſelf burns and ſhines, and with his light warms and cheers all things.” Elaſticity is another cauſe of the renovation of motion mentioned by Sir Iſaac. “We find but little motion in the world (ſays he), except what plainly flows either from theſe active principles, or from the command of the willer.” With regard to the *deſtruction* or poſitive *loſs* of motion, however, we muſt obſerve, that notwithſtanding the authority of Sir Iſaac Newton, it is altogether impoſſible that any ſuch thing can happen. All moving bodies which come under the cognizance of our ſenſes are merely paſſive, and acted upon by ſomething which we call *powers* or *fluids*, and which are to us totally inviſible. Motion, therefore, cannot be loſt without a deſtruction or diminution of one of theſe *powers*, which we have no reaſon to think can ever happen. When two pendulums ruſh againſt each other, the motion is the mere effect of the action of gravity; and that action, which in this caſe is the *power*, continues to be the very ſame whether the pendulum moves or moves not. Could motion, therefore, be exhauſted in this caſe, we muſt ſuppoſe, that by ſeparating two pendulums to the ſame diſtance from each other, and then letting them come together for a great number of times, they would at laſt meet with leſs force than before. But there is certainly not the leaſt foundation for this ſuppoſition; and no rational perſon will take it into his head, that ſuppoſing the whole human race had employed themſelves in nothing elſe from the creation to the preſent day, but ſeparating pendulums and letting them ſtop each other's motion, they would now come together with leſs force than they did at firſt. *Power*, therefore, which is the cauſe of motion, is abſolutely indeſtructible. Powers may indeed counteract one another, or they may be made to counteract themſelves; but the moment that the obſtacle is removed, they ſhow themſelves in their priſtine vigour without the leaſt ſymptom of abatement or decay.—Whether, therefore, we reckon the ultimate ſource of motion to be ſpiritual or material, it is plain that it muſt be to our conceptions *infinite*; neither will the phenomena of nature allow us to give any other explanation than we have done: for no power whatever can loſe more than its own quantity; and it ſeems abſurd to think that the Deity would create the world in ſuch a manner that it would ultimately become immoveable, and then have recourſe to unknown principles to remedy the ſuppoſed defect. On the principle we have juſt now laid down, however, the matter becomes exceedingly plain and obvious. The Creator at firſt formed two oppoſite powers, the action of which is varied according to the circumſtances of the bodies upon which they act; and theſe circumſtances are again varied by the action of the powers themſelves in innumerable ways upon one another, and the approach of one body to another, or their receding to a greater diſtance. Where theſe powers happen to oppoſe each other directly, the body on which they act is at reſt; when they act obliquely, it moves in the diagonal; or if the force acting upon one ſide is by any means leſſened, the body muſt certainly move towards that ſide, as is evident from the caſe of the atmoſphere, the preſſure of which, when removed from one ſide of a body, will make it move very violently towards that ſide; and if we could continually keep off the preſſure in this manner, the motion would aſſuredly be *perpetual*. We muſt not imagine that motion is *deſtroyed* becauſe it is *counteracted;* for it is impoſſible to deſtroy motion by any means but removing the cauſe; counteracting the effect is only a temporary obſtacle, and muſt ceaſe whenever the obſtacle is removed. Nature, therefore, having in itſelf an *infinite* quantity of motion, produces greater or leſſer motions, according to the various action of the moving powers upon different bodies or upon one another, without a poſſibility of the general ſtock being either augmented or diminiſhed, unleſs one of the moving powers was to be withdrawn by the Creator; in which caſe, the other would deſtroy the whole ſyſtem in an inſtant. As to the nature of theſe great original powers, we muſt confeſs ourſelves totally ignorant; nor do we perceive any data from which the nature of them can be inveſtigated. The elements of light, air, &c. are the agents; but in what manner they act, or in what manner they received their action, can be known only to the Creator.

(8.) **MOTION, MUSCULAR.** See ANATOMY and ELECTRICITY, *Index*, MUSCLE and MUSCULAR.

(9.) **MOTION, PERPETUAL,** in mechanics, a motion which is ſupplied and renewed from itſelf, without the intervention of any external cauſe; or an uninterrupted communication of the ſame degree of motion from one part of matter to another, in a circle or other curve returning into itſelf, ſo that the ſame momentum ſtill returns undiminiſhed upon the firſt mover. The celebrated problem of a perpetual motion conſiſts in the inventing a machine, which has the principle of its motion within itſelf. M. de la Hire has demonſtrated the impoſſibility of any ſuch machine, and finds that it amounts to this, viz. to find a body which is both *heavier* and *lighter* at the ſame time, or to find a body which is *heavier than itſelf.* To find a perpetual motion, or to conſtruct an engine, &c. which ſhall have ſuch a motion, is a famous problem that has employed the mathematicians for 2000 years; though none perhaps have proſecuted it with attention and earneſtneſs equal to thoſe of the preſent age. Infinite are the ſchemes, plans, engines, wheels, &c. to which this problem has given birth: It were endleſs to give a detail of them all. In fact, there ſeems but little in nature to countenance all this aſſiduity and expectation; among all the laws of matter and motion, we know of none which ſeem to furniſh any principle or foundation for ſuch an effect. The purſuit ſeems, therefore, to be as idle and fruitleſs as thoſe which employed Chemiſts for ſo many ages in ſearch of the PHILOSOPHER'S STONE and an univerſal PANACEA.

(10.) **MOTION, VEGETABLE.** Though vegetables have not the power of moving from one place to another like animals, they are nevertheleſs capable of moving their different parts in ſuch a manner as would lead us to ſuſpect that they are actuated by a ſort of inſtinct. Hence many have been induced to ſuppoſe, that the animal and vegetable kingdoms are in a manner indiſtinguiſhable from one another; and that the higheſt degree of vegetable life can hardly be known from the loweſt degree of animal life. The eſſential and inſuperable diſtinction, however, between the two is the faculty of ſenſation, and loco-motion in conſequence of it. Were it not, indeed, for the manifeſtation of ſenſe by moving from one place to another, we ſhould not be able to tell whether vegetables were poſſeſſed of ſenſation or not; but whatever motions they may be poſſeſſed of, it is certain that no vegetable has the faculty of moving from one place to another. Some have endeavoured to diſtinguiſh the two kingdoms by the digeſtion of food; alleging that plants have no proper organs, ſuch as a ſtomach, &c. for taking in and digeſting their aliment. But to this it has been replied, that the whole body of a vegetable is a ſtomach, and abſorbs its food at every pore. This, however, ſeems not to be a ſufficient anſwer. All animals take in their food at intervals, and there is not a ſingle inſtance of one which eats perpetually. The food is alſo taken into the body of the animal, and application of the parts made by means of the *internal* organization of the viſcus; but in vegetables, their whole bodies are immerſed in their food, and abſorb it by the ſurface, as animal bodies will ſometimes abſorb liquids when put into them. The roots of a tree indeed will change their direction when they meet with a ſtone, and will turn from barren into fertile ground; but this is evidently mere mechaniſm, without any proof of will or ſenſation; for the nouriſhment of the root comes not from the ſtone, but from the earth around it: and the increaſe in ſize is not owing to any expanſion of the matter which the root already contains, but to the oppoſition of new matter; whence the increaſe of ſize muſt always take place in the direction whence the nouriſhment proceeds. On this principle alſo may we explain the reaſon, why the roots of a tree, after having arrived at the edge of a ditch, inſtead of ſhooting out into the air, will creep down one ſide, along the bottom, and up the other. In their movements, vegetables diſcover nothing like ſenſation or deſign. They will, indeed, uniformly bend toward light, or towards water; but in the one caſe we muſt attribute the phenomenon to the action of the light and air upon them; and in the latter, the property ſeems to be the ſame with what in other caſes we call attraction. Thus, if a root be uncovered, and a wet ſpunge placed near it in a direction different from that in which the root was proceeding, it will ſoon alter its poſition, and turn towards the ſpunge; and thus we may vary the direction of the root as often as we pleaſe. The efforts of a plant to turn from darkneſs or ſhade into ſunſhine are very remarkable, as, to accompliſh this, not only the leaves will be inclined, but even the ſtems and branches twiſted. When a wet ſpunge is held under the leaves of a tree they bend down in order to touch it. If a veſſel of water be put within ſix inches of a growing cucumber, in leſs than 24 hours the latter will alter its direction; the branches will bend towards the water, and never alter their courſe until they come in contact with it. The moſt remarkable inſtance of this kind of motion however, is, that when a pole is brought near a vine, the latter will turn towards it, and never ceaſe extending its branches till it lays hold of the ſupport. The motions of the SENSITIVE PLANT, and others of the ſame kind, have been conſidered as very wonderful; but it is doubtful if any of them be really more ſo than that of the vine. None of thoſe ſhow any kind of propenſity to move without an actual touch. A very ſlight one, indeed, makes the ſenſitive plant contract, and the whole branch, together with the leaves, bend down towards the earth. (See MINOSA, N° 15, 17, 21, 22.) This is ſo ſimilar to ſome phenomena of electricity, that few will heſitate to aſcribe both to the ſame cauſe. Even the motions of the *hedyſarum gyrans*, which at firſt ſight ſeem ſo much more ſurpriſing than thoſe of the ſenſitive plant, may be explained upon the ſame principle. (See HEDYSARUM, N° 2.) There is a ſpecimen of this plant in the botanic garden at Edinburgh. It is a native of the Eaſt Indies, and its motions are occaſioned by the ſun-beams. The leaves are the only moveable parts. They are ſupported by long foot-ſtalks; and when the ſun ſhines upon them they move briſkly in every direction. Their moſt uſual motion is upward and downward; but often they turn almoſt quite round, and then the foot-ſtalks are evidently twiſted. Theſe motions continue only while the light and heat of the ſun continues, ceaſing at night, or when the weather becomes cloudy and cold. The American plant called *Dionæa muſcipula*, or *Venus's fly trap*, is another example of very wonderful mechaniſm in vegetables, though even this does not argue any degree of ſenſation in this plant more than in others. The leaves of the dionæa are jointed, and furniſhed with two rows of prickles. A number of ſmall glands upon the ſurface ſecrete a ſweet juice, which entices flies to come and ſettle upon it; but the moment theſe inſects touch the fatal ſpot, the leaves fold up, and ſqueeze them to death between the prickles. The leaves fold up in the ſame manner when the plant is touched with a ſtraw or pin. (See DIONÆA.) The folding up of the leaves of certain plants in the abſence of the ſun's light, called their *ſleep*, affords another very curious inſtance of vegetable motion. Almoſt all vegetables, indeed, undergo ſuch a remarkable change in the night, that it is difficult to know exactly how many kinds do really ſleep. They fold up their leaves in many different ways; but all agree in diſpoſing of them in ſuch a manner as to afford the beſt protection to the young ſtems, flower-buds, or fruit. The leaves of the tamarind tree contract round the young fruit, to protect it from nocturnal cold; and thoſe of ſenna, glycina, and many other papilionaceous plants, diſpoſe of their leaves in the ſame manner. The leaves of the chickweed, aſclepias, atriplex, &c. are diſpoſed in oppoſite pairs. In the night-time they riſe perpendicularly, and join ſo cloſe at the top that the flowers are concealed by them. In like manner do the leaves protect the flowers of the ſida, or althæa theophraſti, the ayenia, and œnothera, the ſolanum, and the Egyptian vetch. All theſe are erected during the night; but thoſe of the white lupine, in time of ſleep, hang down. The flowers of plants alſo have motions peculiar to themſelves. Many of them during the night are incloſed in their calyxes. Some, particularly thoſe of the German ſpurge, geranium ſtriatum, and common Whitlow graſs, when aſleep, bend towards the earth; by which means the noxious effects of rain or dew are prevented. All theſe motions have been commonly aſcribed to the ſun's rays; and Mr Smellie informs us, that in ſome of the examples above mentioned the effects were evidently to be aſcribed to heat: but plants kept in an hot-houſe, where the temperature of the day and night are alike, contract their leaves, and ſleep in the ſame manner as if they were expoſed to the open air: "whence it appears (ſays he), that the ſleep of plants is owing rather to a peculiar law, than to a quicker or ſlower motion of the juices." He ſuſpects, therefore, that as the ſleep of plants is not owing to the mere abſence of heat, it may be occaſioned by the want of light; and to aſcertain this he propoſes an experiment of throwing upon them a ſtrong artificial light. On this, however, we muſt remark, that the throwing of artificial light upon plants cannot be attended with the ſame effects as that of the light of the ſun, unleſs the former were as ſtrong as the latter, which is impoſſible; and even tho' we could procure an artificial light as ſtrong as that of the ſun, a difference might be occaſioned by the different direction of the rays, thoſe of the ſun being very nearly parallel, while the rays of all artificial light diverge very greatly. If, therefore, we are to make an experiment of this kind, the rays ſhould be rendered parallel by means of a burning mirror. Here again we would be involved in a difficulty; for the rays of the ſun proceed all in one direction; but as of neceſſity we muſt employ different mirrors in our experiment, the light muſt fall upon the plant in different directions, ſo that we could not reaſonably expect the ſame reſult as when the plants are directly expoſed to the rays of the ſun. The motion of plants not being deducible from ſenſation, as in animals, muſt be aſcribed to that property called *irritability;* and this property is poſſeſſed *inſenſibly* by the parts of animals in a greater degree than even by the moſt irritable vegetable. The muſcular fibres will contract on the application of any ſtimulating ſubſtance, even after they are detached from the body to which they belonged. The heart of a frog will continue to beat when pricked with a pin for ſeveral hours after it is taken out of the body. The heart of a viper, or of a turtle, beats diſtinctly from 20 to 30 hours after the death of theſe animals. When the inteſtines of a dog, or any other quadruped, are ſuddenly cut into different portions, all of them crawl about like worms, and contract upon the ſlighteſt touch. The heart, inteſtines, and diaphragm, are the moſt irritable parts of animal bodies; and to diſcover whether this quality reſides in all plants, experiments ſhould be made chiefly on leaves, flowers, buds, and the tender fibres of the roots. The motions of plants are univerſally aſcribed by our author to IRRITABILITY. (See ANIMAL, § 6.) The term, however, requires an explanation; and to give this in an intelligible manner requires ſome attention. The moſt obvious compariſon is that of an electrified thread, which, on the approach of any unelectrified ſubſtance, ſhows a variety of motions, equally ſurpriſing with thoſe of the parts of plants or the muſcular fibres cut out of the body. We know, from the hiſtory of the torpedo, electrical eel, &c. that there are animals in which the electric fluid acts in ſuch a manner as to produce a much more powerful effect than that of a given motion to the leaves of plants. (See ELECTRICITY, *Index.*) The readineſs, therefore, with which this fluid is thrown into agitation when any ſubſtance in which it acts is touched, is without doubt the irritability in queſtion; but we have thence no more reaſon to aſcribe ſenſation to theſe irritable bodies, than to an electrified bottle when it diſcharges itſelf, or makes a cork-ball play around it.

* *To* MOTION. *v. a.* [from the noun.] To propoſe.

* MOTIONLESS. *adj.* [from *motion.*] Wanting motion; being without motion.—

We cannot free the lady that ſits here,
In ſtony fettters fixt, and *motionleſs.* *Milton.*
Ha! do I dream? is this my hop'd ſucceſs?
I grow a ſtatue, ſtiff and *motionleſs.* *Dryden.*
Should our globe have had a greater ſhare
Of this ſtrong force, by which the parts cohere;
Things had been bound by ſuch a pow'rful chain,
That all would fix'd and *motionleſs* remain.
Blackmore.

(1.)* MOTIVE. *adj.* [*motivus,* Latin.] 1. Cauſing motion; having movement.—Shall every *motive* argument uſed in ſuch kind of conferences be made a rule for others ſtill to conclude the like by? *Hooker.* 2. Having the power to move; having power to change place; having power to paſs foremoſt to motion.—The nerves ſerve for the conveyance of the *motive* faculty from the brain. *Wilkins.*

We aſk you whence does *motive* vigour flow?
Blackmore.

—That fancy is eaſily diſproved from the *motive* power of ſouls embodied. *Bentley.*

(2.) MOTIVE is ſometimes applied to that faculty of the human mind, by which we purſue good and avoid evil. Thus Hobbes diſtinguiſhes the faculties of the mind into two ſorts, the cognitive and *motive.*

(3.)* MOTIVE. *n. ſ.* [*motif,* French.] 1. That which determines the choice; that which incites the action.—Thoſe *motives* there are in both, which draw moſt effectually our minds unto them. *Hooker.*

Why in that rawneſs left you wife and children,
Thoſe precious *motives,* thoſe ſtrong knots of love,
Without leave-taking? *Shak.*

—What can be a ſtronger *motive* to a firm truſt in our Maker, than the giving us his Son to ſuffer for us? *Addiſon.*—The *motive* for continuing in the ſame ſtate is the only preſent ſatisfaction in it; the *motive to change* is always ſome uneaſineſs. *Locke.* 2. Mover. Not in uſe.—

Heaven brought me up to be my daughter's dower;
As it hath fated her to be my *motive*
And helper to a huſband. *Shak. All's well.*
Her wanton ſpirits look out
At every joint and *motive* of her body. *Shak.*

MOTLAU, a river of Pruſſia, which joins the Rodaun at Dantzic; after which the united ſtreams join the Viſtula.

* MOTLEY. *adj.* [ſuppoſed to be corrupted from *medley,* perhaps from *mothlike,* coloured, ſpotted, or variegated like a garden *moth.*] Mingled of various colours.—

They that come to ſee a fellow
In a long *motley* coat, guarded with yellow,
Will be deceiv'd. *Shak. Henry* VIII.
Expenſe and after-thought, and idle care,
And doubts of *motley* hue, and dark deſpair. *Dryd.*
Enquire from whence this *motley* ſtyle
Did firſt our Roman purity defile. *Dryd. Perſ.*
Traulus, of amphibious breed,
Motley fruit of mungrel ſeed. *Swift.*

MOTOL, a town of Lithuania, in Brzeſk.

MOTOLA, a town of Naples, in Otranto.

* MOTOR. *n. ſ.* [*moteur,* French; from *moveo,* Latin.] A mover.—Thoſe bodies being of a congenerous nature, do readily receive the impreſſions of their motor, and, if not fettered by their gravity, conform themſelves to ſituations, wherein they beſt unite unto their animator. *Brown.*

* MOTORY. *adj.* [*motorius,* Latin.] Giving motion.—The bones, were they dry, could not, without great difficulty, yield to the plucks and attraction of the *motory* muſcles. *Ray.*

MOTOUALIS, a ſmall nation of Syria, inhabiting to the eaſt of the country of the DRUSES, in the valley which ſeparates their mountains from thoſe of Damaſcus. Mr Volney, in his *Travels,* (vol. ii. p. 84.) ſays, "The characteriſtic diſtinction between them and the other inhabitants of Syria is, that they are of the ſect of Ali, while all the Turks follow that of Omar or Moaouia. This diſtinction is the cauſe of an irreconcileable hatred between the two parties. The ſectaries of Omar aſſume the title of *Sonnites,* (or the *orthodox,*) and term their adverſaries *Shiites,* that is, *ſectaries of Ali.* The word *Motouali* has this meaning in the Syriac. The followers of Ali call themſelves *Adlia,* i. e. *aſſertors of juſtice,* or *juſticiarians.* A ſmall Arabic Treatiſe, entitled "Theological Fragments concerning the Sects and Religions of the World," has the following paſſage: "Thoſe ſectaries, who pretend that God acts only on principles of juſtice, conformable to human reaſon, are called *Adlia* or *Juſticiarians.* God cannot (ſay they) command an impracticable worſhip, nor ordain impoſſible actions, nor enjoin men to perform what is beyond their ability; but wherever he requires obedience, will beſtow the power to obey. He removes the cauſe of evil, he allows us to reaſon, and impoſes only what is eaſy, not what is difficult; he makes no man reſponſible for the actions of another, nor puniſhes him for that in which he has no part; he imputes not as a crime what himſelf has crea-

They, as they *move*
Their ſtarry dance in numbers that compute
Days, months, and years, tow'rds his all-cheering lamp,
Turn ſwift their various motions. *Milton.*

(2.) * *To* Move. *v. n.* 1. To be in a ſtate of changing place; not to be at reſt.—

Whether Heav'n *move* or Earth
Imports not, if thou reckon right. *Milton.*

—The ſenſes repreſent the earth as immoveable; for though it do *move* in itſelf, it reſts to us who are carried with it. *Glanville.* 2. To have a particular direction of paſſage.—

The ſun
Had firſt his precept ſo to *move*, ſo ſhine,
As might affect the earth with cold and heat. *Milton.*

3. To go from one place to another.—

I look'd toward Birnam, and, anon, methought
The wood began to *move.*
Within this three mile may you ſee it coming;
I ſay a *moving* grove. *Shak. Macbeth.*
On the green bank I ſat and liſten'd long,
Nor till her lay was ended could I *move*. *Dryd.*

—This ſaying, that God is the place of ſpirits, being literal, makes us conceive that ſpirits *move* up and down, and have their diſtances and intervals in God, as bodies have in ſpace. *Locke.*—When we are come to the utmoſt extremity of body, what is there that can put a ſtop, and ſatiſfy the mind, that it is at the end of ſpace, when it is ſatisfied that body itſelf can *move* into it; *Locke.*—Any thing that *moves* round about in a circle, in leſs time than our ideas are wont to ſucceed one another in our minds, is not perceived to *move*, but ſeems to be a perfect entire circle of that matter. *Locke.*—

The goddeſs *moves*
To viſit Paphos and her blooming groves. *Pope.*

4. To have vital action.—In him we live, *move*, and have our being. *Acts*, xvii. 28.—Every *moving* thing that liveth ſhall be meat for you. *Geneſis*, ix. 3. 5. To walk; to bear the body.—

See great Marcellus! how inur'd in toils
He *moves* with manly grace. *Dryden's Æn.*

6. To march as an army.—

Anon they *move*
In perfect phalanx to the Dorian mood. *Milt.*

7. To go forward.—

Thro' various hazards and events we *move*
To Latium. *Dryden's Æn.*

8. To change the poſture of the body in ceremony.—When Haman ſaw Mordecai that he ſtood not up, nor *moved* for him, he was full of indignation. *Eſther*, v. 9.

(1.) * MOVEABLE. *adj.* [from *move.*] 1. Capable of being moved; not fixed; portable; ſuch as may be carried from place to place.—In the vaſt wilderneſs, when the people of God had no ſettled habitation, yet a *moveable* tabernacle they were commanded of God to make. *Hooker.*—When he made his prayer, he found the boat he was in *moveable* and unbound, the reſt remained ſtill faſt. *Bacon.*—Any heat whatſoever promotes the aſcent of mineral matter, which is ſubtile, and is conſequently *moveable* more eaſily. *Woodw.*—Any one who ſees the Teverone muſt conclude it to be one of the moſt *moveable* rivers in the world, that it is ſo often ſhifted out of one channel into another. *Addiſon on Italy.* 2. Changing the time of the year.—The lunar month is natural and periodical, by which the *moveable* feſtivals of the Chriſtian church are regulated. *Holder.*

(2.) Moveable Feasts are ſuch as are not always held on the ſame day of the year or month; though they be on the ſame day of the week. See Feasts, § III, v, 2. Thus, Eaſter is a moveable feaſt, being always held on the Sunday after the full moon, which falls upon or next after the 21ſt of March. All the other moveable feaſts are regulated by Eaſter, and keep their diſtance from it; ſuch are Septuagesima, Sexagesima, Ash-Wednesday, &c. which ſee under their proper articles.

(3.) * Moveables. *n. ſ.* [*meubles*, Fr.] Goods; furniture: diſtinguiſhed from real or immoveable poſſeſſions, as lands or houſes.—

We ſeize
The plate, coin, revenues, and *moveables*,
Whereof our uncle Gaunt did ſtand poſſeſs'd. *Shakeſp.*

Let him, that moved you hither,
Remove you hence; I knew you at the firſt
You were a *moveable*.
—Why, what's a *moveable?*
—A join'd ſtool. *Shak. Taming of the Shrew.*
Surveys rich *moveables* with curious eye,
Beats down the price, and threatens ſtill to buy. *Dryden.*

(4.) Moveable Subject, in law, any thing that moves itſelf, or can be moved; in contradiſtinction to immoveable or heritable ſubjects, as lands, houſes, &c.

* MOVEABLENESS. *n. ſ.* [from *moveable.*] Mobility; poſſibility to be moved.

* MOVEABLY. *adv.* [from *moveable.*] So as it may be moved.—His back-piece is compoſed of 18 plates, *moveably* joined together by as many intermediate ſkins. *Grew.*—

* MOVELESS. *adj.* Unmoved; not to be put out of the place.—The lungs, though untouched, will remain *moveleſs* as to any expanſion or contraction of their ſubſtance. *Boyle.*—

The Grecian phalanx, *moveleſs* as a tow'r,
On all ſides batter'd, yet reſiſts his pow'r. *Pope.*

(1.) * MOVEMENT. *n. ſ.* [*mouvement*, French.] 1. Manner of moving.—What farther relieves deſcriptions of battles, is the art of introducing pathetick circumſtances about the heroes, which raiſe a different *movement* in the mind, compaſſion and pity. *Pope's Eſſay on Homer.*—Under workmen are expert enough at making a ſingle wheel in a clock, but are utterly ignorant how to adjuſt the ſeveral parts, or regulate the *movement*. *Swift.* 2. Motion.—

Could he whoſe laws the rolling planets bind,
Deſcribe or fix one *movement* of the mind? *Pope.*

(2.) Movement is often uſed in the ſame ſenſe with automaton. The moſt uſual movements for keeping time are watches and clocks: the firſt are ſuch as ſhow the parts of time, and are portable in the pocket; the 2d ſuch as publiſh it by ſounds, and are fixed as furniture. See Clock, Horologe, and Watch.

(3.) Movement, in its popular uſe among us, ſignifies all the inner work of a watch, clock, or other engine, which move, and by that motion carry on the deſign of the machine. The movement of a clock or watch is the inſide, or that part which meaſures the time, ſtrikes, &c. excluſive of the frame, caſe, dial-plate, &c. The parts common to both theſe movements are, the main-ſpring, with its appurtenances, lying in the ſpring-box, and in the middle thereof lapping about the ſpring-arbor, to which one end of it is faſtened. A-top of the ſpring-arbor is the endleſs ſcrew and its wheel; but in ſpring clocks, this is a ratchet-wheel with its click, that ſtops it. That which the main-ſpring draws, and round which the chain or ſtring is wrapped, is called the *fuſee;* this is ordinarily taper; in large works, going with weights, it is cylindrical, and called the *barrel.* The ſmall teeth at the bottom of the fuſee or barrel, which ſtop it in winding up, is called the *ratchet;* and that which ſtops it when wound up, and is for that end driven up by the ſpring, the *garde-gut.* The wheels are various: the parts of a wheel are, the hoop or rim, the teeth, the croſs, and the collet or piece of braſs ſoldered on the arbor or ſpindle whereon the wheel is rivetted. The little wheels playing in the teeth of the larger are called *pinions;* and their teeth, which are 4, 5, 6, 8, &c. are called *leves;* the ends of the ſpindle are called *pivots;* and the guttered wheel, with iron ſpikes at bottom, wherein the line of ordinary clocks runs, the *pulley.* See CLOCK; FUSEE, § 1, 2; WATCH, WHEEL, &c.

(4.) MOVEMENT, PERPETUAL. There is reaſon to think, from the principles of mechanics, that ſuch a movement is impoſſible; for though, in many caſes of bodies acting upon one another, there is a gain of abſolute motion, yet the gain is always equal in oppoſite directions; ſo that the quantity of direct motion is never increaſed. (See MECHANICS.) To make a perpetual movement, it would be neceſſary that a certain ſyſtem of bodies ſhould move in a certain ſpace and manner *for ever;* and for this there muſt be a ſeries of actions returning in a circle, otherwiſe the movement will not be perpetual; ſo that any action, by which the abſolute quantity of force is increaſed, muſt have its correſponding counter-action, by which the gain is deſtroyed, and the quantity of force reſtored to its firſt ſtate. Thus there will never be any gain of direct force to overcome the friction and reſiſtance of the medium; ſo that every motion being diminiſhed by theſe reſiſtances, they muſt at length languiſh and ceaſe. See MOTION, § 9.

(1.) * MOVENT. *adj.* [*movens,* Lat.] Moving.—If it be in ſome part *movent,* and in ſome part quieſcent, it muſt needs be a curve line, and ſo no radius. *Grew.*

(2.) * MOVENT. *n. ſ.* [*movens,* Lat.] That which moves another.—That there is a motion which makes the viciſſitudes of day and night, ſenſe may aſſure us; but whether the ſun or earth be the common *movent,* cannot be determined but by a further appeal. *Glanville.*

* MOVER. *n. ſ.* [from *move.*] 1. The perſon or thing that gives motion.—

O thou eternal *mover* of the heav'ns,
Look with a gentle eye upon this wretch. *Shak.*

—The ſtrength of a ſpring were better aſſiſted by the labour of ſome intelligent *mover,* as the heavenly orbs are ſuppoſed to be turned. *Wilkins.* 2. Something that moves, or ſtands not ſtill.—

You as the ſoul, as the firſt *mover,* you
Vigour and life on ev'ry part beſtow. *Waller.*
So orbs from the firſt *mover* motion take,
Yet each their proper revolutions make. *Dryd.*

3. A propoſer.—

See here theſe *movers,* that do prize their honours
At a crack'd drachm; cuſhions, leaden ſpoons,
Ere yet the fight be done, pack up. *Coriol.*

—If any queſtion be moved concerning the doctrine of the church of England expreſſed in the thirty-nine articles, give not the leaſt ear to the *movers* thereof. *Bacon.*

MOUFET, Thomas, M. D. a celebrated Engliſh phyſician, born at London, in the 16th century. He practiſed medicine with great reputation at Ipſwich, but ſpent the latter part of his life near Wilton, and died about 1600. He publiſhed a work at London, in 1634, folio, entitled, *Theatrum Inſectorum.* A tranſlation of it was publiſhed at London in 1658, folio. Martin Liſter gives a very unfavourable opinion of this book, and cenſures him for quoting Aldrovandus without naming him; but Ray vindicates Moufet, and maintains that he has rendered an eſſential ſervice to the republic of letters. Moufet was the firſt who introduced chemical medicines into England.

MOUG-DEN, or CHEN-YANG, a city of Chineſe Tartary, and capital of the country of the Mantchews, or Eaſtern Tartars. They have ornamented it with ſeveral public edifices, and provided it with magazines of arms and ſtorehouſes. They conſider it as the principal place of their nation; and ſince China has been under their dominion, they have eſtabliſhed the ſame tribunals here as at Peking, excepting that called *Lii-pou:* theſe tribunals are compoſed of Tartars only; their determination is final; and in all their acts they uſe the Tartar characters and language. The city is built on an eminence: a number of rivers add much to the fertility of the ſurrounding country. It may be conſidered as a double city, of which one is encloſed within the other: the interior contains the emperor's palace, hotels of the principal mandarins, ſovereign courts, and the different tribunals; the exterior is inhabited by the common people, tradeſmen, and all thoſe who by their employments are not obliged to lodge in the interior. The latter is almoſt a league in circumference; and the walls which encloſe both are more than three leagues round: theſe walls were rebuilt in 1631, and repaired ſeveral times in the reign of Kang-hi.—Near the gates are two magnificent tombs of the firſt emperors of the reigning family, built in the Chineſe manner, and ſurrounded by a thick wall furniſhed with battlements; the care of them is entruſted to ſeveral Mantchew mandarins, who at ſtated times perform certain ceremonies; a duty of which they acquit themſelves with the ſame marks of veneration as if their maſters were ſtill living.

* MOUGHT, for *might.* Obſolete.

MOUGINS, a town of France, in the dep. of Var; 4½ miles SE. of Graſſe.

MOUGON, a town of France, in the dep. of the Two Sevres; 7½ miles SSW. of St Maixent.

MOUILLERON, a town of France, in the dep. of the Vendee; 6 miles NW. of Chataigneray.

(1.) * MOVING. *participial adj.* [from *move.*] Pathetick; touching; adapted to affect the paſſions.—

Great Jupiter,
The *moving* pray'r of Æacus did grant,
And into men and women turn'd the ant.
Blackmore.

(2.) MOVING MOSS. See MOSS, § 6.

(3.) MOVING PLANTS. See HEDYSARUM, MIMOSA, and TREMELLA.

* MOVINGLY. *adv.* [from *moving.*] Pathetically; in ſuch a manner as to ſeize the paſſions.—The choice and flower of all things profitable in other books, the Pſalms do both more briefly and more *movingly* expreſs, by reaſon of that poetical form wherewith they are written. *Hooker.*—

I would have had them write more *movingly.* *Shak.*

His air, his voice, his looks, and honeſt ſoul,
Speak all ſo *movingly* in his behalf,
I dare not truſt myſelf to hear him talk. *Addiſ.*

MOUKI, a town of Arabia, in Hedsjas.

(1.) MOUL, a river of England, in Devonſhire.

(2.) MOUL, a cape of Scotland, on the E. coaſt of Shetland.

(3.) MOUL, or MOUL HEAD, a cape of Scotland, on the N. coaſt of the iſle of Papa.

MOULA, in Turkiſh polity, the judge of a province, in diſtinction from the Cadis, who are judges of towns. See CADI, § 2.

MOULAR, a town of France, in the dep. of the Seſia, and late Piedmonteſe; 3 miles SW. of Suſa.

(1.) * MOULD. *n. ſ.* [*moegel*, Swediſh.] 1. A kind of concretion on the top or outſide of things kept motionleſs and damp; now diſcovered by microſcopes to be perfect plants.—All *moulds* are inceptions of putrefaction, as the *moulds* of pies and fleſh, which *moulds* turn into worms. *Bacon.*—Moſs is a kind of *mould* of the earth and trees, but may be better ſorted as a rudiment of germination. *Bacon.*—Another ſpecial affinity is between plants and *mould*, or putrefaction; for all putrefaction, if it diſſolve not in arefaction, will, in the end, iſſue into plants. *Bacon.*—The malt made in ſummer is apt to contract *mould. Mort.*—A hermit who has been ſhut up in his cell in a college, has contracted a ſort of *mould* and ruſt upon his ſoul, and all his airs have awkwardneſs in them. *Watts.* 2. [*Molds*, Saxon.] Earth; ſoil; ground in which any thing grows.—Thoſe *moulds* that are of a bright cheſnut or hazelly colour are accounted the beſt; next to that the dark grey and ruſſet *moulds* are accounted the beſt; the light and dark aſh-colour are reckoned the worſt, ſuch as are uſually found on common or heathy ground: the clear tawny is by no means to be approved, but that of a yellowiſh colour is reckoned the worſt of all; this is commonly found in wild and waſte parts of the country, and for the moſt part produce nothing but goſs, furze, and fern. All good lands, after rain, or breaking up by the ſpade, will emit a good ſmell; that being always the beſt that is neither too unctuous nor too lean, but ſuch as will eaſily diſſolve; of a juſt conſiſtence between ſand and clay. *Miller.*—

Though worms devour me, though I turn to *mould*,
Yet in my fleſh I ſhall his face behold. *Sandys.*

—The black earth, everywhere obvious on the ſurface of the ground, we call *mould. Woodward.* 3. Matter of which any thing is made.—

When the world began,
One common maſs compos'd the *mould* of man.
Dryden.

Nature form'd me of her ſofteſt *mould*,
Enfeebled all my ſoul with tender paſſions,
And ſunk me even below my weak ſex. *Addiſ.*

4. [*Molde*, Spaniſh; *moule*, French.] The matrix in which any thing is caſt; in which any thing receives its form.—If the liturgies of all the ancient churches be compared, it may be perceived they had all one original *mould. Hooker.*—A dangerous precedent were left for the caſting of prayers into certain poetical *moulds. Hooker.*—French churches all caſt according unto that *mould* which Calvin had made. *Hooker.*—

My wife comes foremoſt; then the honour'd *mould*
Wherein this trunk was fram'd. *Shak. Coriol.*

—You may have fruit in more accurate figures, according as you make the *moulds. Bacon.*—

The liquid ore he drain'd
Into fit *moulds* prepar'd; from which he form'd
Firſt his own tools. *Milton.*

—We may hope for new heavens and a new earth, more pure and perfect than the former; as if this was a refiner's fire, to purge out the droſs and coarſe parts, and then caſt the maſs again into a new and better *mould. Burnet.*—

Sure our ſouls were near allied, and thine
Caſt in the ſame poetick *mould* with mine. *Dryd.*

Here in fit *moulds*, to Indian nations known,
Are caſt the ſeveral kinds of precious ſtone.
Blackmore.

5. Caſt; form.—

No mates for you,
Unleſs you were of gentler, milder *mould. Shak.*

—William earl of Pembroke was a man of another *mould* and making, being the moſt univerſally beloved of any man of that age. *Clarendon.*—

Nor virtue, wit, nor beauty, could
Preſerve from death's hand this their heav'nly *mould.* *Carew.*

What creatures there inhabit, of what *mould*,
Or ſubſtance, how endu'd. *Milton.*

So muſt the writer, whoſe productions ſhould
Take with the vulgar, be of vulgar *mould.*
Waller.

From their main-top joyful news they hear
Of ſhips, which by their *mould* bring new ſupplies. *Dryden.*

Hans Carvel, impotent and old,
Married a laſs of London *mould.* *Prior.*

6. The ſuture or contexture of the ſkull. *Ainſw.* 7. It is uſed in a ſenſe a little ſtrained by *Shakſpeare.*—

New honours come upon him,
Like our ſtrange garments, cleave not to their *mould*,
But with the end of uſe. *Shak. Macbeth.*

(2.) MOULD, in agriculture, (§ 1. *def.* 2.) is a general name for the ſoft earthy ſubſtance with which the dry land is generally covered, and in which all kinds of vegetables take root and grow. It is, however, far from being an homogeneous ſubſtance; being compounded of decayed animal and vegetable matters, various earths and other ſubſtances, all mixed together in various proportions, and with the different degrees of moiſture, conſtituting all the varieties of SOIL throughout the world. See MINERALOGY, *Part* II. *Chap*. IV. *Claſs* I. *Ord*. III. *Sect*. I. *Gen*. IV.

(3.) **MOULD**, or **MOLD**, (§ 1. *def*. 4.) in the mechanic arts, &c. a cavity artfully cut, with deſign to give its form or impreſſion to ſome ſofter matter applied therein. Moulds are implements of great uſe in ſculpture, foundery, &c. The workmen employed in melting the mineral or metallic glebe dug out of mines, have each their ſeveral moulds to receive the melted metal as it comes out of the furnace; but theſe are different, according to the diverſity of metals and works. In gold mines, they have moulds for ingots; in ſilver mines, for bars; in copper or lead mines, for pigs or ſalmons; in tin mines, for pigs and ingots; and in iron mines, for ſows, chimney-backs, anvils, caldrons, pots, and other large utenſils and merchandizes of iron; which are here caſt as it were at firſt hand.

(4.) **MOULD**, among gold-beaters, a certain number of leaves of vellum or pieces of gut cut ſquare, of a certain ſize, and laid over one another, between which they put the leaves of gold and ſilver which they beat on the marble with the hammer. See GOLD LEAF. They have four kinds of moulds, two whereof are of vellum, and two of gut: the ſmalleſt of thoſe of vellum conſiſts of 40 or 50 leaves; the largeſt contains 100: for the others, each contain 500 leaves. The moulds have all their ſeveral caſes, conſiſting of two pieces of parchment, ſerving to keep the leaves of the mould in their place, and prevent their being diſordered in beating.

(5.) **MOULD**, among maſons, is a piece of hard wood or iron, hollowed within-ſide, anſwerable to the contours of the mouldings or cornices, &c. to be formed. This is otherwiſe called CALIBER.

(6.) **MOULD**, in ſhip-building, a thin flexible piece of timber, uſed by ſhipwrights as a pattern whereby to form the different curves of the timbers, and other compaſſing pieces in a ſhip's frame. There are two ſorts of theſe, viz. the bend mould and hollow mould; the former of theſe determines the convexity of the timbers, and the latter their concavity on the outſide, where they approach the heel, particularly towards the extremities of the veſſel. The figure given to the timbers by this pattern is called their *bevelling*.

(7.) **MOULDS**, uſed in baſket-making, are very ſimple, conſiſting ordinarily of a willow or oſier turned or bent into an oval, circle, ſquare, or other figure, according to the baſkets, panniers, hampers, and other utenſils intended. On theſe moulds they make, or more properly meaſure, all their work; and accordingly they have them of all ſizes, ſhapes, &c.

(8.) **MOULDS** of founders of large works, as ſtatues, bells, guns, and other brazen works, are of wax, ſupported within-ſide by what we call a core, and covered without-ſide with a cape or caſe. It is in the ſpace which the wax took up, which is afterwards melted away to leave it free, that the liquid metal runs, and the work is formed; being carried thither by a great number of little canals, which cover the whole mould. See FOUNDERY, § 1, 2, 5; and ORDNANCE.

(9.) **MOULDS** of founders of ſmall works are like the frames of coiners: it is in theſe frames, which are likewiſe filled with ſand, that their ſeveral works are faſhioned; into which, when the two frames, whereof the mould is compoſed, are rejoined, the melted braſs is run.

(10.) **MOULDS**, with furnace and crucible makers, are made of wood, of the ſame form with the crucibles; that is, in form of a truncated cone: they have handles of wood to hold and turn them with, when, being covered with the earth, the workman has a mind to round or flatten his veſſel.

(11.) **MOULDS**, among glaſs-grinders, are wooden frames, whereon they make the tubes wherewith they fit their perſpectives, teleſcopes, and other optic machines. Theſe moulds are cylinders, of a length and diameter according to the uſe they are to be applied to, but always thicker at one end than the other, to facilitate the ſliding. The tubes made on theſe moulds are of two kinds; the one ſimply of paſteboard and paper; the other of thin leaves of wood joined to the paſteboard. To make theſe tubes to draw out, only the laſt or innermoſt in formed on the mould; each tube made afterwards ſerving as a mould to that which is to go over it, but without taking out the mould from the firſt. See GLASS-MAKING, *Sect*. XIII.

(12.) **MOULDS** for leaden bullets are little iron pincers, each of whoſe branches terminates in a hemiſpherical concave, which when ſhut form an entire ſphere. In the lips or ſides where the branches meet, is a little jet or hole, through which the melted lead is conveyed.

(13.) **MOULDS** of letter-founders are partly of ſteel and partly of wood. The wood, properly ſpeaking, ſerves only to cover the real mould which is within, and to prevent the workman, who holds it in his hand, from being incommoded by the heat of the melted metal. Only one letter or type can be formed at once in each mould. See FOUNDERY, § 3.

(14.) **MOULDS**, in the manufacture of paper, are little frames compoſed of ſeveral braſs or iron wires, faſtened together by another wire ſtill finer. Each mould is of the bigneſs of the ſheet of paper to be made, and has a rim or ledge of wood to which the wires are faſtened. Theſe moulds are more uſually called frames or forms. See PAPER-MAKING.

(15.) **MOULDS** of moneyers are frames full of ſand, wherein the plates of metal are caſt that are to ſerve for the ſtriking of gold and ſilver coin. (See COINAGE, § IV.) A ſort of concave moulds made of clay, having within them the figures and inſcriptions of ancient Roman coins, are found in many parts of England, and ſuppoſed to have been uſed for the caſting of money. Mr Baker ſaw ſome of theſe moulds that were found in Shropſhire, bearing the ſame types and inſcriptions with ſome of the Roman coins, and gave an account of them to the Royal Society.

They were found among ſand at Ryton in Shropſhire, a mile from the great Watling-ſtreet road. They are all of the ſize of the Roman denarius, and of little more than the thickneſs of a halfpenny. They are made of ſmooth pot or brick clay. There were many of them found together, and ſome of them are often found in Yorkſhire; but they do not ſeem to have been met with in any other kingdom, except ſome that were once found at Lyons. They have been ſometimes found joined together ſide by ſide, on one flat piece of clay, as if intended for caſting a great number of coins at once; and all that have been found have been of the emperor Severus. They are ſometimes found impreſſed on both ſides, with the head of Severus on one ſide, and ſome well known reverſe of his on the other. They ſeem plainly to have been intended for the coinage of money, though it is not eaſy to ſay in what manner they can have been employed to that purpoſe, eſpecially thoſe which have impreſſions on both ſides, unleſs it may be ſuppoſed that they coined two pieces at the ſame time by the help of three moulds, of which this was to be the middle one. If by diſpoſing theſe into ſome ſorts of iron frame or caſe, as our letter-founders do the braſs moulds for caſting their types, the melted metal could eaſily be poured into them, it would certainly be a very eaſy method of coining, as ſuch moulds require little time or expenſe to make, and therefore might be ſupplied with new ones as often as they break. Theſe moulds ſeem to have been burnt or baked ſufficiently to make them hard; but not ſo as to render them porous, whereby they would have loſt their ſmooth ſurface, which in theſe is ſo cloſe, that whatever metal ſhould be formed in them would have no appearance like the ſand-holes by which counterfeit coins and medals are uſually detected.

(16.) MOULDS among plumbers, are the tables whereon they caſt their ſheets of lead. Theſe they ſometimes call ſimply *tables*. Beſides which they have other real moulds, wherewith they caſt pipes without ſoldering. See each deſcribed under PLUMBERY.

(17.) MOULDS among tallow chandlers are of two kinds: the firſt for the common dipped candles, being the veſſel wherein the melted tallow is diſpoſed, and the wick dipped. This is of wood, of a triangular form, and ſupported on one of its angles; ſo that it has an opening of near a foot a-top: the other, uſed in the fabric of moulded candles, is of braſs, pewter, or tin.—Here each candle has its ſeparate mould. See CANDLE, § 8, 9.

(18.) MOULDS, GLAZIERS. The glaziers have two kinds of moulds, both ſerving to caſt their lead: in the one they caſt their lead into long rods or canes fit to be drawn through the vice, and the grooves formed therein; this they ſometimes call ingot-mould. In the other, they mould thoſe little pieces of lead a line thick and two lines broad, faſtened to the iron bars. Theſe may be alſo caſt in the vice.

(19.) MOULDS, GOLDSMITHS. The goldſmiths uſe the bones of the cuttle-fiſh to make moulds for their ſmall works; which they do by preſſing the pattern between two bones, and leaving a jet or hole to convey the ſilver through after the pattern has been taken out. This may be the practice in England, but it is not known among the goldſmiths in Scotland.

(20.) MOULDS, LABORATORY, are made of wood, for filling and driving all ſorts of rockets and cartridges, &c.

(1.) * *To* MOULD. *v. a.* [from the noun.] To cover with mould; to corrupt by mould.—Very coarſe, hoary, *moulded* bread the ſoldiers thruſt upon their ſpears, railing againſt Ferdinand, who made no better proviſion. *Knolles.*

(2.) * *To* MOULD. *v. a.* [from the noun.] 1. To form; to ſhape; to model.—

I feel
Of what coarſe metal ye are *moulded*. *Shak.*

Here is the cap your worſhip did beſpeak;
Why this was *moulded* on a porringer,
A velvet diſh; fie, fie, 'tis lewd. *Shak.*

—The king had taken ſuch liking of his perſon, that he reſolved to make him a maſter-piece, and to *mould* him platonically to his own idea. *Wotton.*

Did I requeſt thee, Maker! from my clay
To *mould* me man? *Milton.*

—He forgeth and *mouldeth* metals, and builds houſes. *Hale.*—By education we may *mould* the minds and manners of youth into what ſhape we pleaſe. *Atterbury.*—

Then roſe the ſeeds of chaos, and of night
Of dull and venal a new world to *mould*,
And bring Saturnian days of lead and gold.
Dunciad.

—A faction in England, under the name of puritan, *moulded* up their new ſchemes of religion with republican principles in government. *Swift.*—

For you alone he ſtole
The fire that forms a manly ſoul;
Then, to complete it ev'ry way,
He *moulded* it with female clay. *Swift.*

—Fabellus would never learn any moral leſſons, till they were *moulded* into the form of ſome fiction or fable like thoſe of Æſop. *Watts.* 2. To knead: as, to *mould* bread. *Ainſworth.*

(3.) * *To* MOULD. *v. n.* [from the noun.] To contract concreted matter; to gather mould.—

Ne can the man that *moulds* in idle cell
Unto her happy manſion attain. *F. Queen.*

—There be ſome houſes wherein ſweetmeats will relent, and baked meats will *mould*, more than in others. *Bacon.*

* MOULDABLE. *adj.* [from *mould.*] That may be moulded.—The differences of figurable and not figurable, *mouldable* and not *mouldable*, are plebeian notions. *Bacon.*

* MOULDER. *n. ſ.* [from *mould.*] He who moulds.

(1.) * *To* MOULDER. *v. a.* [from *mould.* To turn to duſt; to crumble.—The natural hiſtories of Switzerland talk of the fall of thoſe rocks when their foundations have been *mouldered* with age, or rent by an earthquake. *Addiſon.*

Some felt the ſilent ſtroke of *mould'ring* age,
Some hoſtile fury. *Pope.*

(2.) * *To* MOULDER. *v. n.* [from *mould.*] To be turned to duſt; to periſh in duſt; to be diminiſhed; to wear or waſte away.—If he had ſat ſtill, the enemy's army would have *mouldered* to nothing,

thing, and been expoſed to any advantage he would take. *Clarendon.*—Whatſoever *moulders* or is waſted away, is carried into the lower grounds, and nothing brought back again. *Burnet.* —Thoſe formed ſtones deſpoiled of their ſhells, and expoſed upon the ſurface of the ground, in time decay, wear, and *moulder* away, and are frequently found defaced, and broken to pieces. *Woodward.*—

To them by ſmiling Jove 'twas giv'n,
Great William's glories to recall,
When ſtatues *moulder*, and when arches fall.
Prior.

—Finding his congregation *moulder* every Sunday, and hearing what was the occaſion of it, he reſolved to give his pariſh a little Latin in his turn. *Addiſon.*

(1.) * **MOULDINESS.** *n. ſ.* [from *mouldy.*] The ſtate of being mouldy.—Fleſh, fiſh, and plants, after a *mouldineſs*, rottenneſs, or corrupting, will fall to breed worms. *Bacon.*

(2.) **Mouldiness** is a term applied to bodies which corrupt in the air, from ſome hidden principle of humidity therein; and whoſe corruption ſhows itſelf by a certain white down or lanugo on their ſurface, which viewed through a microſcope appears like a kind of meadow, out of which ariſe herbs and flowers, ſome only in the bud, others full blown, and others decayed; each having its root, ſtalk, and other parts. See Mucor.

(1.) * **MOULDING.** *n. ſ.* [from *mould.*] Ornamental cavities in wood or ſtone.—Hollow *mouldings* are required in the work. *Moxon.*

(2.) *A* **Moulding** is any thing caſt in a mould, or that ſeems to have been ſo, though in reality it were cut with a chiſſel or ax.

(3.) **Mouldings**, in architecture, projectures beyond the naked wall, column, wainſcot, &c. the aſſemblage of which forms corniches, door-caſes, and other decorations of Architecture. See *Index* to that article.

(1.) * **MOULDWARP.** *n. ſ.* [*mold* and *weorpan*, Saxon. This is I believe the proper and original name of the *talpa:* a *mouldwarp* is a creature that *turns mould.* The word is ſtill retained, though ſometimes pronounced *mouldywarp.*] A mole; a ſmall animal that throws up the earth.—

Above the reach of loathful ſinful luſt,
Whoſe baſe effect through cowardly diſtruſt
Of his own wings, dare not to heaven flie,
But like a *mouldwarp* in the earth doth lie.
Spenſer.

—While they play the *mouldwarps*, unſavory damps diſtemper their heads with annoyance only for the preſent. *Carew.*—With gins we betray the vermin of the earth, namely, the fichat and the *mouldwarp.* *Wolton.*

(2.) **Mouldwarp**, or Mole. See Talpa.

* **MOULDY.** *adj.* [from *mould.*] Overgrown with concretions.—Is thy name *mouldy?*—Yea, 'Tis the more time thou wert us'd.—Ha, ha, ha; moſt excellent. Things that are *mouldy* lack uſe. Well ſaid, Sir John. *Shak. Henry* IV.—The marble looks white, as being expoſed to the winds and ſalt ſea-vapours, that, by continually fretting it, preſerve it from that *mouldy* colour which others contract. *Addiſon.*

MOULIHERNE, a town of France, in the dep. of Maine and Loire, 6 miles SE. of Bauge.

(1.) **MOULIN**, Charles Du, a celebrated civilian, and one of the moſt learned men of the 16th century, was born of a conſiderable family at Paris in 1500; and acquired great reputation by his ſkill in the law. He publiſhed many works, which have been collected and printed in 5 volumes folio; and are conſidered as the moſt excellent works that France has produced on the ſubject of civil law. He died at Paris in 1566.

(2.) **Moulin**, Peter Du, a proteſtant divine, of the ſame family with the former, born in 1568. He taught philoſophy at Leyden; and afterwards became chaplain to the princeſs of Navarre. At the deſire of King James I. he came over to England in 1615, and prepared a plan for the union of the Proteſtant churches. He preſided at the ſynod held by the Calviniſts at Alais in 1620. Some time after he retired to Sedan, where the D. of Bouillon made him profeſſor of divinity, and miniſter. He was employed by the Calviniſts in the moſt important affairs; and died at Sedan in 1658. His principal works are, 1. The anatomy of Arminianiſm: 2. A treatiſe on repentance, and the keys of the church: 3. The capuchine: 4. A defence of the reformed churches: 5. The judge of controverſies and traditions: 6. The anatomy of the Maſs: 7. The novelty of Popery.

(3.) **Moulin**, Peter Du, eldeſt ſon of the preceding, was chaplain to Charles II. and prebendary of Canterbury, where he died in 1684, aged 84. He wrote, 1. The peace of the ſoul in French. 2. *Clamor regii ſanguinis;* which Milton, by miſtake, attributed to Alexander Morus. 3 A defence of the Proteſtant religion.

(4.) **Moulin**, Gabriel Du, a French hiſtorian and eccleſiaſtic, who wrote, 1. *Hiſtoire Generale de Normandie ſous les Ducs:* Rouen; 1631, fol. 2. Hiſtoire des Conquetes des Normans dans les royaumes des Napſes et Sicilie, fol.

(5.) **Moulin**, a mountainous pariſh of Perthſhire, ſo named from the village, (N° 6.) 13 miles long from NE. to SW. and from 4 to 6½ broad. It conſiſts of two diſtricts, Athol and Strathardle. The air is dry and healthy, the ſoil fertile, except on the hills, which afford good paſture for ſheep, and abound with lime-ſtone. The population, in 1791, was 1749; and had decreaſed 360 ſince 1755. About 700 acres are under wood; and 1950 in cultivation, producing good crops of oats, barley, peaſe, potatoes, and lintſeed. The number of ſheep was 9400; horſes, 584; and black cattle, 1462. The total annual produce is valued at 13,007l. The oak woods are cut once in 20 years, and are worth 4500l. a cutting. The bark is eſtimated at the ſame value. The chief manufacture and export is linen yarn, which amounts to about 2683l. a year; ſheep ſold annually produce 900l.; black cattle, 300l.; wool, 900 fleeces, 300l. There are 10 corn mills, 7 lint, and 3 fulling mills. There two licenſed ſtills, and 24 whiſky and ale-houſes; yet, though almoſt all the buſineſs is tranſacted in theſe, the people ſeldom exceed moderation. Capt. Campbell of Finnab, the hero of Darien, was born in this pariſh. (See Darien, N° 1, § 4.)

4.) The battle of Killicrankie was fought in it, on the 17th July 1689. See KILLICRANKIE.

(6.) **Moulin**, a village in the above pariſh, originally ſeated near a lake (ſince drained), whence the name from *maoth linne*, Gael. a ſmooth pool, or *magh linne*, pool-field. It has a fair in March famous for linen yarn.

(1.) **MOULINET**. *n. ſ.* in mechanics, a roller, which, being croſſed with two levers, is uſually applied to cranes, capſtans, and other ſorts of engines of the like nature, to draw ropes, and heave up ſtones, &c.

(2.) **Moulinet** is alſo a kind of turnſtile, or wooden croſs, which turns horizontally upon a ſtake fixed in the ground: uſually placed in paſſages to keep out cattle, and to oblige paſſengers to go and come one by one. Thoſe moulinets are often ſet near the outworks of fortified places at the ſides of the barriers, through which people paſs on foot.

(1.) **MOULINS**, a town of France, capital of the dep. of Alier, as it was of the late prov. of Bourbomuois. It is ſo named from a number of *mills* that were near it; and is ſeated on the Alier, over which it has a fine bridge of 13 arches. It contains above 16,000 citizens. The houſes of the Chartreux, and the Viſitation, are magnificent. It carries on a conſiderable trade in cutlery ware, and is ſeated in a pleaſant fertile plain, almoſt in the middle of France: 30 m. S. of Nevers, and 55 N. of Clermont. Lon. 3. 25. E. Lat. 46. 34. N.

(2.) **Moulins en Gilbert**, a town of France, in the dep. of Nievre, and ci-devant prov. of Nivernois; at the foot of the mountains of Morvan, 5 miles SW. of Château-Chinon, and 27 E. of Nevers.

(3.) **Moulins La Marche**, a town of France, in the dep. of the Orne, 9 miles SW. of Aigle, and 18 NE. of Alençon.

MOULS, an iſland near the N. coaſt of Cornwall, N. of the Allan.

* *To* **MOULT**. *v. n.* [*muyten*, Dutch.] To ſhed or change the feathers; to loſe feathers.—Some birds upon *moulting* turn colour, as Robin redbreaſts, after their *moulting*, grow to be red again by degrees. *Bacon.*—

Time ſhall *moult* away his wings,
E'er he ſhall diſcover
In the whole wide world again
Such a conſtant lover. *Suckling.*

The widow'd turtle hangs her *moulting* wings,
And to the woods in mournful murmur ſings. *Garth.*

(1.) **MOULTAN**, a province of Indoſtan; on the E. ſide of the Indus; bounded on the N. by Lahore; E. by Delhi and Agimere; S. by Guzerat and ſome ſandy deſerts; and W. by Perſia and Candahar. It belongs to the King or Scheik of Candahar. Cotton, ſugar, ſulphur, opium, &c. are its chief products.

(2.) **Moultan**, an ancient city of Indoſtan, capital of the above province; with a famous pagoda, or Hindoo temple. It was formerly a place of great trade in cotton ſtuffs, &c. A ſet of Hindoo reſide in it called the *Cattry* or *Kuttry* tribe, whom Major Rennel ſuppoſes to be the deſcendants of the *Catheri*, who joined the *Malli*, in oppoſing Alexander the Great, (See INDIA, § 4.) It is ſeated on the Chunaub, a branch of the Indus, 200 miles SW. of Lahore, 375 NW. of Delhi, and 800 from the ſea coaſt. Lond. 70. 40. E. Lat. 29. 52. N.

MOULTING, or **Molting**, *n. ſ.* the falling off, or change of hair, feathers, ſkins, horns, or other parts of animals, happening in ſome annually, in others only at certain ſtages of their lives. The generality of animals moult in ſpring. The moulting of a hawk is called *mewing*. The moulting of a deer is the quitting of his horns in February or March. The moulting of a ſerpent is the changing his ſkin. See EXUVIÆ, § 1.

(1—7.) **MOULTON**, the names of 9 towns of England, viz. 1. in Cheſhire, near Sandbach: 2. in Lincolnſhire on the Waſh: 3 & 4. in Norfolk: 5. in Northamptonſhire, 3 miles from Northampton: 6. in Suffolk, E. of Newmarket: 7. in Yorkſhire, near Richmond.

(8.) **Moulton, North**, a town of Devonſhire on the Moul, and the N. ſide of S. Moulton, of whoſe hundred it is a member, and anciently gave name to it. It has two fairs, on Tueſday after May 11, and on Nov. 12.

(9.) **Moulton, South**, a town on the S. ſide of the Moul, 182 miles from London. Both the Moultons were anciently royal demeſnes. This corporation, which ſent members to parliament in the reign of Edward I, conſiſts of a mayor, 18 capital burgeſſes, a recorder, town-clerk, and 2 ſerjeants. It has a market on Saturday; and fairs on the firſt Tueſday after May 11, and Nov. 12. The chief manufactures are ſerges, ſhalloons, and felts; and great quantities of wool brought from the country are bought up here. In 1684, a merchant of London, a native of the town, built and endowed a free ſchool. There is alſo a charity ſchool. It lies 12 miles SE. of Barnſtaple. Lon. 3. 55. W. Lat. 1. 5. N.

* *To* **MOUNCH**. *To* **Maunch**. *v. a.* [*mouch*, to eat much. *Ainſ.* This word is retained in Scotland, and denotes the obtunded action of toothleſs gums on a hard cruſt, or any thing eatable: It ſeems to be a corruption of the French word *manger*. *Macbean.*—

A ſailor's wife had cheſnuts in her lap,
And *mouncht*, and *mouncht*, and *mouncht*. *Shak.*

(1.) * **MOUND**. *n. ſ.* [*mundian*, Saxon, to defend.] Any thing raiſed to fortify or defend; uſually a bank of earth or ſtone.—

This great garden, compaſs'd with a *mound*. *Fairy Queen.*

The ſea's a thief, whoſe liquid ſurge reſolves
The *mounds* into ſalt tears. *Timon of Athens.*

God had thrown
That mountain as his garden *mound*, high rais'd. *Milton.*

—Such as broke through all *mounds* of law, ſuch as laughed at the ſword of vengeance which divine juſtice brandiſhed in their faces. *South.*—

Nor cold ſhall hinder me with horns and hounds
To thrid the thickets, or to leap the *mounds*. *Dryd.*

—The ſtate of Milan is like a vaſt garden ſurrounded by a noble *mound*-work of rocks and mountains. *Addiſon.*

(2.) **Mound**, in heraldry, a ball or globe with a croſs upon it, ſuch as our kings are uſually drawn with, holding it in their left hand, as they do the ſceptre in the right.

(3.) **Mound, Earthen.** See **Edinburgh**, § 17.

* *To* **Mound.** *v. a.* [from the noun.] To fortify with a mound.

MOUNESS-NESS, a cape of Shetland, on the SE. coaſt of the iſle of Unſt. Lon. 2. 10. E. of Edinburgh. Lat. 61. 3. N.

(1.) * **MOUNT.** *n. ſ.* [*mont*, Fr. *mons*, Latin.] 1. A mountain; a hill.—Jacob offered ſacrifice upon the *mount*. *Gen.* xxxi. 54.—

Behold yon mountain's hoary height,
Made higher with new *mounts* of ſnow. *Dryden.*

2. An artificial hill raiſed in a garden or other place.—He might ſee what *mounts* they had in ſhort time caſt, and what a number of warlike ſoldiers. *Knolles.* 3. A publick treaſure; a bank. Now obſolete.—Theſe examples confirmed me in a reſolution to ſpend my time wholly in writing; and to put forth that poor talent God hath given me, not to particular exchanges, but to banks or *mounts* of perpetuity, which will not break. *Bacon.*

(2.) **Mount.** See **Mountain**, § 3.

(3.) **Mounts of Piety**, certain funds or eſtabliſhments in Italy, where money is lent out on ſome ſmall ſecurity. There were alſo mounts of piety in England, raiſed by contribution for the benefit of people ruined by the extortions of the Jews.

(1.) * *To* **Mount.** *v. a.* [*monter*, French.] 1. To raiſe aloft; to lift on high.—

The fire that *mounts* the liquor till it runs o'er,
Seeming to augment, waſtes it. *Shak.*

What power is it which *mounts* my love ſo high,
That makes me ſee, and cannot feed mine eye? *Shak.*

—The air is ſo thin, that a bird has therein no feeling of her wings, or any reſiſtance of air to *mount* herſelf by. *Raleigh.* 2. To aſcend; to climb.—

Shall we *mount* again the rural throne,
And rule the country kingdoms, once our own? *Dryden.*

3. To place on horſeback; to furniſh with horſes.—

Three hundred horſes, in high ſtables fed,
Of theſe he choſe the faireſt and the beſt,
To *mount* the Trojan troop. *Dryden.*

—Clear reaſon, acting in conjunction with a well diſciplined, but ſtrong and vigorous fancy, ſeldom fail to attain their end: fancy without reaſon is like a horſe without a rider; and reaſon without fancy is not well *mounted*. *Carew.* 4. To embelliſh with ornaments. 5. *To* **Mount** *guard*. To do duty and watch at any particular poſt. 6. *To* **Mount** *a cannon*. To ſet a piece on its wooden frame for the more eaſy carriage and management in firing it.

(2.) * *To* **Mount.** *v. n.* 1. To riſe on high.—Doth the eagle *mount* up at thy command, and make her neſt on high? *Job* iii. 27.

I'll ſtrive, with troubled thoughts, to take a nap;
Leſt leaden ſlumber poize me down to-morrow,
When I ſhould *mount* with wings of victory. *Shak.*

A baſe ignoble mind,
That *mounts* no higher than a bird can ſoar. *Shak.*

The fire of trees and houſes *mounts* on high,
And meets half-way new fires that ſhow'r from ſky. *Cowley.*

—If the liturgy ſhould be offered to them, it would kindle jealouſy, and as the firſt range of that ladder which ſhould ſerve to *mount* over all their cuſtoms. *Clarendon.*—They have no more time allowed them in their *mounting* than the ſingle revolution of a day. *Dryden.* 2. To tower; to be built to great elevation.—Though his excellency *mount* up to the heavens, and his head reach unto the clouds, yet he ſhall periſh. *Job* xx. 6. 3. To get on horſeback.—

He cry'd, oh! and *mounted*. *Shak.*

4. [For *amount*.] To attain in value.—

Bring then theſe bleſſings to a ſtrict account,
Make fair deductions, ſee to what they *mount*? *Pope.*

(1.) * **MOUNTAIN.** *adj.* [*montanus*, Latin.] Found on the mountains; pertaining to the mountains; growing on the mountains.—

Now for our *mountain* ſport, up to yond hill;
Your legs are young. *Shak. Cymbeline.*

You may as well forbid the *mountain* pines
To wag their high tops, and to make a noiſe,
When they are fretted with the guſts of heav'n. *Shak.*

(2.) * **Mountain.** *n. ſ.* [*montaigne*, French.] 1. A large hill; a vaſt protuberance of the earth.

And by his falſe worſhip ſuch pow'r he did gain,
As kept him o' th' *mountain*, and us on the plain. *Raleigh.*

The ark no more now flotes, but ſeems on ground,
Faſt on the top of ſome high *mountain* fix'd. *Milton.*

From Acmon's hand a rolling ſtone there came,
So large, it half deſerv'd a *mountain's* name. *Dryden.*

2. Any thing proverbially huge.—I had been drown'd; a death that I abhor; for the water ſwells a man, and what ſhould I have been when I had been ſwelled? I ſhould have been a *mountain* of mummy. *Shak.*—

She did corrupt frail nature with ſome bribe,
To make an envious *mountain* on my back,
Where ſits deformity to mock my body. *Shak.*

(3.) *A* **Mountain** is a conſiderable eminence of land, elevated above every thing adjoining to it, and commanding all the ſurrounding places: it is commonly full of inequalities, cavities more or leſs expoſed, and ſtrata half laid open. This name abbreviated is likewiſe given to a *chain of mountains*; as *Mount Atlas*, *Mount Caucaſus*, &c. Thoſe who have ſurveyed the earth in general, and ſtudied nature on a grand ſcale, have conſtantly been ſtruck with admiration and aſtoniſhment at the ſight of ſuch majeſtic eminences, which, extending in different ways, ſeem to rule over the reſt of the globe, and which preſent to the beholder a ſpectacle equally magnificent and intereſting. See § 7—11.

(4.) **Mountain of forty days**; a mountain of Judea, ſituated in the plain of Jericho, on the N. of that city; ſo named from our Saviour's faſt upon or near it, for that period. According to the Abbe Mariti's deſcription, the ſummit is covered neither with ſhrubs, turf, nor earth; it conſiſts of a ſolid maſs of white marble, the ſurface of which is become yellow by the injuries of the air. "The path by which you aſcend to it (ſays he) fills one with terror, as it riſes with a winding courſe between two abyſſes, which the eye dares ſcarcely behold. This path is at firſt pretty broad, but at length becomes ſo confined, that one can with difficulty place both feet upon it at the ſame time. When we had reſted ourſelves at a ſmall grotto, we purſued our courſe, which became ſtill more dangerous. Suſpended almoſt from the rock, and having before our eyes all the horror of the precipice, we could advance only by dragging one foot after the other; ſo that, had the ſmalleſt fragment given way under us, we ſhould have been hurried to the botton of this frightful abyſs. Proceeding a little farther, we found a 2d grotto, the entrance of which was about 9 feet in breadth. This grotto conducts to another, which we entered, but were almoſt ſtifled by the great number of bats fluttering up and down in it. Some niches in the ſides gave us reaſon to conclude, that it had ſerved as a ſepulchre to the anchorets. The other grotto appears by the remains of an altar and ſome Greek paintings to have been a church. In the right corner there is a large ciſtern, the plaſter of which retains its original ſolidity, though broken in a few places. In the left corner there is a ſmall ſtair which conducts to a 3d grotto. This is much longer and broader than any of the former, and its walls are alſo ornamented with Greek paintings, which repreſent the 12 apoſtles in their natural ſize. Their names are written in Greek characters upon the glory which ſurrounds their heads. At the farther end of this grotto ſtands a ſquare altar a little damaged; above which is an oval painting of the Annunciation, in perfect preſervation. The chiſel has been employed to render theſe grottos regular and ſmooth; and it appears that they were inhabited by hermits. Nicephorus and Euſebius, who have deſcribed all the churches and religious places of Palaſtine and Judea, do not ſpeak of theſe chapels. This mountain is one of the higheſt in the province, and one of its moſt ſacred places. It takes its name from the rigorous faſt which Chriſt obſerved here. In remembrance of this miracle, a chapel was formerly conſtructed on the ſummit of the mountain. Many ſcattered grottos are ſeen here; in one of which, according to Quareſmius, were depoſited the bodies of ſeveral anchorets. Here we enjoyed the moſt beautiful proſpect imaginable. This part of the mountain overlooks the mountains of Arabia, the countries of Gilead, the Ammonites, and of Moab, the plain of Jericho, the Jordan, and the whole extent of the Dead Sea. See Matth. iv. 8.

(5.) MOUNTAINS, ATTRACTION OF. This is a late diſcovery, and a very conſiderable confirmation of Sir Iſaac Newton's theory of univerſal gravity. According to the Newtonian ſyſtem, an attractive power is not only exerted between thoſe large maſſes of matter which conſtitute the ſun and planets, but likewiſe between all comparatively ſmaller bodies, and even between the ſmalleſt particles of which they are compoſed. Agreeably to this hypotheſis, a heavy body, which ought to gravitate or tend toward the centre of the earth, in a direction perpendicular to its ſurface, ſuppoſing the ſaid ſurface to be perfectly even and ſpherical, ought likewiſe, though in a leſs degree, to be attracted and tend towards a mountain placed on the earth's ſurface; ſo that a plumb-line, for inſtance, of a quadrant, hanging in the neighbourhood of ſuch a mountain, ought to be drawn from a perpendicular ſituation, in conſequence of the attractive power of the quantity of matter of which it is compoſed acting in a direction different from that exerted by the whole maſs of matter in the earth, and with a proportionably inferior degree of force. Though Sir Iſaac Newton had long ago hinted at an experiment of this kind, and had remarked, that "a mountain of an hemiſpherical figure, three miles high and ſix broad, would not, by its attraction, draw the plumb-line two minutes (or rather 1′ 18″) out of the perpendicular:" yet no attempt to aſcertain this matter by actual experiment was made till about 1738; when the French academicians, particularly Meſſrs Bouguer and Condamine, who were ſent to Peru to meaſure a degree under the equator, attempted to diſcover the attractive power of CHIMBORAZO, in Quito. According to their obſervations, Chimboraço exerted an attraction equal to 8 ſeconds. Though this experiment was not perhaps ſufficient to prove ſatisfactorily even the reality of an attraction, much leſs the preciſe quantity of it; yet it does not appear that any ſteps had been ſince taken to repeat it. Through the munificence of his Britannic majeſty, the Royal Society were enabled to undertake the execution of this delicate and important experiment; the aſtronomer royal was choſen to conduct it. After various inquiries, the mountain Schehallien, ſituated nearly in the centre of Scotland, was pitched upon as the moſt proper for the purpoſe that could be found in this iſland. The obſervations were made by taking the meridian zenith diſtances of different fixed ſtars, near the zenith, by means of a zenith ſector of ten feet radius; firſt on the S. and afterwards on the N. ſide of the hill, the greateſt length of which extended in an E. and W. direction. It is evident, that if the maſs of matter in the hill exerted any ſenſible attraction, it would cauſe the plumb-line of the ſector, through which an obſerver viewed a ſtar in the meridian, to deviate from its perpendicular ſituation, and would attract it contrarywiſe at the two ſtations, thereby doubling the effect. On the S. ſide the plummet would be drawn to the northward, by the attractive power of the hill placed to the northward of it: and on the N. ſide, a contrary and equal deflection of the plumb-line would take place, in conſequence of the attraction of the hill, now to the S. of it. The apparent zenith diſtances of the ſtars would be affected contrarywiſe; thoſe being increaſed at the one ſtation which were diminiſhed at the other; and the correſpondent quantities of the deflection of the plumb-line would give the obſerver the ſum of the contrary attractions of the hill, acting on the plummet at the two ſtations; the half of which will of courſe indicate the attractive power of the hill. The operations requiſite for this experiment laſted about four months; and from them it appears, that the ſum of the two contrary attractions of the mountain Schehallien, in the two temporary obſervations which was ſucceſſively fixed half-way up the hill (where the effect of its attraction would be greateſt), was equal to 11″. 6‴.—From a rough computation, founded on the known law of gravitation, and on an aſſumption, that the denſity of the hill is equal to the mean denſity of the earth, it appears that the attraction of the hill ſhould amount to about the double of this quantity. Thence it was inferred, that the denſity of the hill is only about half the mean denſity of the earth. It does not appear, however, that the mountain Schehallien has ever been a volcano, or is hollow; as it is extremely ſolid and denſe, and ſeemingly compoſed of an entire rock. The inferences drawn from theſe experiments may be reduced to the following: "1. That the mountain Schehallien exerts a ſenſible attraction; therefore, from the rules of philoſophiſing, we are to conclude, that every mountain, and indeed every particle of the earth, is endued with the ſame property, in proportion to its quantity of matter. 2. The law of the variation of this force, in the inverſe ratio of the ſquares of the diſtances, as laid down by Sir Iſaac Newton, is alſo confirmed by this experiment. For if the force of attraction of the hill had been only to that of the earth, as the matter in the hill to that of the earth, and had not been greatly increaſed by the near approach to its centre, the attraction thereof muſt have been wholly inſenſible. But now, by only ſuppoſing the mean denſity of the earth to be double to that of the hill, which ſeems very probable from other conſiderations, the attraction of the hill will be reconciled to the general law of the variation of attraction in the inverſe duplicate ratio of the diſtances, as deduced by Sir Iſaac Newton from the compariſon of the motion of the heavenly bodies with the force of gravity at the ſurface of the earth; and the analogy of nature will be preſerved. 3. We may now, therefore, be allowed to admit this law, and to acknowledge, that the mean denſity of the earth is at leaſt double of that at the ſurface; and conſequently that the denſity of the internal parts of the earth is much greater than near the ſurface. Hence alſo, the whole quantity of matter in the earth will be at leaſt as great again as if it had been all compoſed of matter of the ſame denſity with that at the ſurface; or about 4 or 5 times as great as if it were all compoſed of water.—This concluſion, Mr Maſkelyne adds, is totally contrary to the hypotheſis of ſome naturaliſts, who 'ſuppoſe the earth to be only a great hollow ſhell of matter; ſupporting itſelf from the property of an arch, with an immenſe vacuity in the midſt of it.' But, were that the caſe, the attraction of mountains, and even ſmaller inequalities in the earth's ſurface, would be very great, contrary to experiment, and would affect the meaſures of the degrees of the meridian much more than we find they do; and the variation of gravity, in different latitudes, in going from the equator to the poles, as found by pendulums, would not be near ſo regular as it has been found by experiment to be. "4. As mountains are by theſe experiments found capable of producing ſenſible deflections of the plumb-lines of aſtronomical inſtruments, it is of great importance, in the menſuration of degrees in the meridian, either to chooſe places where the irregular attractions of the elevated parts may be ſmall; or, where, by their ſituation, they may compenſate or counteract the effects of each other." See ASTRONOMY, *Index*.

(6.) **MOUNTAINS, BURNING.** See ÆTNA, ETNA, HECLA, VESUVIUS, and VOLCANO.

(7.) **MOUNTAINS, DIFFERENT KINDS OF.** Naturaliſts reckon ſeveral kinds of mountains. (See MINERALOGY, *Part* II. *Claſs* I. *Appendix*.) Theſe elevations of the earth have not all the ſame origin, nor date their commencement from the ſame era. I. Thoſe mountains which form a chain, and which are covered with ſnow, may be conſidered as *primitive* or antediluvian. They are like majeſtic bulwarks ſcattered on the ſurface of the globe, and greatly exceed the other mountains in height. In general, their elevation is very ſudden, and their aſcent very ſteep and difficult. Their ſhape is that of a pyramid crowned with ſharp and prominent rocks, on which no verdure is to be ſeen, but which are dry, naked, and as it were ſtripped of their ſoil, which has been waſhed away by the rains, and which preſent an awful and horrible aſpect, ſufficient to impreſs the coldeſt imagination with terror. Theſe primitive mountains which aſtoniſh the eye, and where wind only reigns, are condemned by nature to perpetual ſterility. At the foot of them we frequently find paths leſs ſteep and winding, than when we aſcend to a greater height. They every where preſent thundering caſcades, frightful precipices, and deep valleys. The depreſſions and excavations correſpond with the quantity of water, the motion of which is accelerated in its fall, and which ſometimes produces a total ſinking or an inclination of the mountain. The wrecks to be found at the foot of moſt peaks, ſhow how much they have ſuffered from the hand of time. Nothing meets the eye but enormous rocks, heaped in confuſion on one another, which prevent the approach of the human race. On the ſummits of theſe mountains, which are only a ſeries of peaks frequently detached from one another, the prominent rocks are covered with eternal ſnow and ice, and ſurrounded with floating clouds which are diſperſed into dew. In a word, the rugged cliffs oppoſe an inacceſſible rampart to the intrepidity of man; and nature ſeems to exhibit a picture of diſorder and decay. No ſhells or other organized marine bodies are to be found in the internal part of theſe primitive mountains; and though ſearch has been made, by digging, on the top of the Alps and the Pyrenees, no ſubſtances of this nature have yet been diſcovered except on the ſides near the baſe. Nothing is to be met with but continued rocks, natural caverns, abounding in cryſtallizations of great beauty, and various minerals. The ſtone of which they conſiſt is an immenſe maſs of quartz, ſomewhat varied, which penetrates into the bowels of the earth in a direction almoſt perpendicular to the horizon.

We find no calcareous ſpar but in the fiſſures or rents which have ſome extent and an evident direction; and at great depths we find new parts as it were, or, in other words, the primitive ſtate of things. All primitive mountains furniſh proofs of theſe aſſertions. Of this kind in Europe are the Pyrenees, the Alps, the Appennines, the mountains of Tirol, the mountain of the giants in Sileſia, the Carpathian mountains of Saxony, thoſe of Norway, &c. In Aſia the Riphean mountains, Mount Caucaſus, Mount Taurus, and Mount Libanus; in Africa the mountains of the Moon; and in America the Apalachian mountains, and the Andes or Cordilleras. Many of the latter have been the ſeats of VOLCANOES. II. Another kind of mountains are thoſe which are either detached, or ſurrounded with groups of little hills, the ſoil of which is heaped up in diſorder, and the cruſt gravelly and confuſedly arranged together. Theſe are truncated, or have a wide mouth in the ſhape of a funnel towards the ſummit, and which are compoſed of, or ſurrounded with, heaps of calcined and half vitrified bodies, lava, &c, Theſe mountains appear to have been formed by different ſtrata raiſed up and diſcharged into the air, upon occaſion of the irruption of ſubterraneous fire. The iſles of Santorin, Monte-Nuovo, Mount Etna, Adam's Peak in the iſland of Ceylon, the peak of Teneriffe in the Canary Iſlands; and many others, have been formed in this manner. When very high mountains of this kind are covered with ſea-ſhells, their ſummits are ſuppoſed to have once conſtituted a part of the bottom of the ocean. A number of theſe mountains have been formed in the memory of man; and preſent nothing to the view but diſordered ruins, confuſed maſſes, parts heaped together in the greateſt irregularity, and productions formed by eruptions or by the falling in of the earth. When a mountain of this kind is connected with the land, and advances farther into the ſea than the adjoining country, it is then termed a CAPE, HEAD, or PROMONTORY; ſuch as the Cape of Good Hope at the ſouthern extremity of Africa. Mountains of the 2d rank are commonly more eaſy of acceſs. Dr Haller obſerves, that the angle formed between their baſe and their declivity is larger; that they have fewer ſprings; and that their plants are different from thoſe of the Alps. The peaſants in Swiſſerland, he tells us, are acquainted with the difference betwixt theſe two kinds of mountains. III. Thoſe mountains, whether arranged in a group or not, the earth or ſtone of which is diſpoſed in ſtrata more or leſs regular, and conſiſting of one or more colours and ſubſtances, are produced by the ſubſtances depoſited ſlowly and gradually by the waters, or by ſoil gained at the time of great floods. We often ſee little hills formed in this manner, which are always of a ſmall height compared with thoſe of the firſt order, and round in the top, or covered with ſoil, frequently forming a pretty flat and extenſive ſurface. We there find likewiſe ſand and heaps of round pebbles, like ſuch as have been worn by the waters. The internal part of theſe mountains conſiſts of a heap of ſtrata almoſt horizontal, and containing a prodigious quantity of ſhells, marine bodies, and fiſh-bones. Although theſe mountains formed by ſtrata ſometimes degenerate into little hills, and even become almoſt flat, they always conſiſt of an immenſe collection of foſſils of different kinds, in great preſervation, and which are pretty eaſily detached from their earthy bed whether harder or ſofter. Theſe foſſils, conſiſting of marine ſhells intermixed and confounded with heaps of organiſed bodies of another ſpecies, preſent a picture of aſtoniſhing diſorder, and give indubitable indications that ſome extraordinary and violent current (ſuch as the general DELUGE) has confounded and accumulated in the general diſorder and precipitation foreign ſubſtances and ſhells of various kinds. Theſe, removed from their natural and original place, by their union form an elevation and a mountain, which are in fact nothing but a compoſition of the wrecks of bodies formerly organiſed. All theſe phenomena ſeem to prove, that moſt of theſe mountains chiefly owe their origin to the ſea, which once covered ſome parts of our continent, now left dry by its retreat. Upon theſe principles, Anaxarchus explained the formation of the mountains of Lampſacus. In theſe mountains we likewiſe find wood, prints of plants, ſtrata of clay, marl, and chalk, different beds of ſtone ſucceeding one another, ſuch as ſlate, marble which is often full of ſea ſhells, lime-ſtone, which appears to be wholly formed from the wreck of ſhells, plaſter-ſtone; entire ſtrata of ochre, and beds of bitumen, mineral ſalt, and alum. The ſtrata of mountains which are lower and of a recent date, or formed by recent accidents, ſometimes appear to reſt upon, or to take their riſe from, the ſides of primitive mountains which they ſurround, and of which they in ſome meaſure form the firſt ſteps in the aſcent; and they end by being inſenſibly loſt in the plains. With reſpect to the irregularity of ſome ſtrata in recent mountains, it is owing to violent and ſudden inundations, to torrents, and to local revolutions which have produced angles, leaps, and ſinkings down of the ſtrata. It is generally obſerved, however, that the ſtrata in mountains are exactly parallel to each other throughout all their different windings. M. Deſmareſt remarks, that in two mountains which by their brows form the hollow of a valley, there are ſtrata of earth or ſtone of the ſame kind, and diſpoſed and arranged in the ſame manner. The ſtrata of recent mountains are not every where the ſame in number and thickneſs. Some ſtrata are only a quarter of an inch thick, others are more than ten feet; in ſome places 30 or 40 beds ſucceed each other, in others only 3 or 4. In recent mountains compoſed of ſtrata, M. Lehmann obſerves, the loweſt ſtratum is always pit-coal; and this reſts on a coarſe and ferruginous gravel or ſand. Above the pit-coal are ſtrata of ſlate, ſchiſtus, &c. and the upper part of the ſtrata is conſtantly occupied by limeſtone and ſalt ſprings. The utility of theſe obſervations, in working for theſe minerals, is obvious, and by attending to the diſtinction which has been made of the different mountains of the ſame kind, we may know what kind of ſubſtances we may expect to find in them. The ſpecimens which appear without, indicate what ſubſtances are concealed within. In general, when two or more mountains run parallel to each other, the ſalient angles correſpond with the receding ones; and theſe angles are ſharper and more ſtriking in deep and narrow valleys. Dr Haller obſerves that there are many places in the Alps and other mountains, where two chains are prolonged contrary to the axis of the valley, and join ſo as only to leave as much ſpace as is neceſſary for the diſcharge of the water. In other places the mountain is continued, for inſtance, to the N. and diſcontinued to the S. where it opens into a valley. In others, the two chains retire and form a bend on each ſide, the concavity of which fronts the axis: hence ariſe valleys almoſt round and completely united. Primitive mountains which form vaſt chains, are commonly connected together; ſucceed one another for ſeveral hundred leagues; and cover with their branches, and collateral ramifications, the ſurface of continents. Kircher and many others have obſerved, that the principal chain generally runs from S. to N. and from E. to W. The Cordilleras in the New world, Dr Haller obſerves, extend from N. to S.; the Pyrenees have nearly the ſame direction; the Alps run from E. to W. and there muſt be a chain of this kind in Africa, for the great rivers in that quarter of the world run to the E. on the one ſide and to the W. on the other. The chain of Thibet appears to be parallel to the Alps; and, from the great length of the road through the ſnows, it may be inferred that the mountains of Thibet have a very great elevation. Thoſe mountains which, ſtrictly ſpeaking, are the principal roots, and the capital point of elevation and diviſion, preſent very conſiderable maſſes, both with regard to their height, and their ſize or extent; they commonly occupy and traverſe the centre of continents. Thoſe which have a ſmaller elevation ariſe from theſe principal chains; they gradually diminiſh in proportion to their diſtance from their root, and at length wholly diſappear either on the coaſt or in the plains. Others are continued along the ſhore, their chain is interrupted only to make room for the waters of the ocean, under the bed of which the baſe of theſe mountains extends; and it again occurs in iſlands, which perpetuate their continuation till the whole chain reappears. The higheſt mountains and the greateſt number of iſlands are generally found between or near the tropics, and in the middle of the temperate zones; while the loweſt are adjacent to the poles; though this is not without exception.

(8.) **MOUNTAINS, GENERAL DIRECTIONS OF THE PRINCIPAL.** Dr Walker late Prof. of Natural Hiſtory in the univerſity of Edinburgh, remarks, that the E. ſide of moſt mountains is comparatively low, but that the W. is remarkably lofty, rugged and broken, and many of them are more ſenſibly ſteep on the W. than on the E. This geological fact was firſt obſerved by the Doctor, of the hills near Edinburgh, and he ſoon found it to hold true of the Lomonds, the Highland hills, and all the other hills in Scotland and England, which have uniformly a gradual ſlope towards the E. In other countries the ſame phænomenon is remarkable. The W. coaſts of Norway are precipitous, high and rocky. The Lapland Alps exhibit a precipitous W. ſide, while the E. gradually ſlopes away into extenſive plains. The ſame fact is equally remarkable reſpecting the mountains on the continent of America. Another remark has been made that hills and mountains all run in the longeſt direction of the iſlands in which they are placed. Thus the mountains of Britain, the Scandinavian, Norwegian, and Swediſh Alps, run from N. to S. and the long extended chain of the Andes in America run in the ſame direction, which is the greateſt length of that continent.—In this ſection we ſhall give a geographical deſcription of the direction of the principal mountains, and of that kind of connection which ſubſiſts between them. M. Buache places the moſt elevated points of the great chain of mountains under the equatorial line: but, according to other authors, the fulleſt and moſt continuous lands, and perhaps the moſt elevated, are to be found at a diſtance from the equator, and towards the temperate zones. If, in fact, we ſurvey the globe's ſurface, we will not be able to perceive that chain of mountains, which running from E. to W. and dividing the earth into two portions, ought again to meet. On the contrary, extenſive plains ſeem to accompany the line through almoſt its whole extent. In Africa, the deſerts of Nigritia and of Upper Ethiopia, are on the one ſide of the line; and on the other are the ſandy plains of Nicoco, Caffraria, Monoemugi, and Zanguebar. From the E. coaſts of Africa to the Sunda iſlands, is a ſpace of 150 leagues of ſea, with almoſt no iſlands except the Laccadive and Maldive iſlands; moſt part of which have little elevation, and which run from N. to S. From the Molucca iſlands and new Guinea, to the W. borders of America, the ſea occupies 3000 leagues. Though Chimboraço and Pichincha in America, the two higheſt mountains which have been meaſured, are near and even under the line, yet from this no concluſion can be drawn; becauſe on one ſide theſe mountains run in a direction not parallel to the equator; the Andes or Cordilleras attain a greater elevation as they remove from the equator towards the poles; and a vaſt plain is found exactly under the line, between the Oroonoko and the river of the Amazons. Beſides, the latter river, which takes its riſe in Lima about 11° Lat. S. after croſſing the whole of South America from W. to E. falls into the ocean exactly under the equator. This ſhows that there is a deſcent for the ſpace of 12° or 300 leagues. From the mouth of the Amazons, to the W. ſhores of Africa, the ſea forms another plain of more than 50°. From the few certain facts and accurate obſervations of well informed travellers, we might almoſt affirm, that the moſt elevated land on our globe is ſituated without the tropics in the N. and S. hemiſpheres. By examining the courſe of the great rivers, we in fact find that they are in general diſcharged into three great reſervoirs, the one under the line, and the other two towards the poles. This, however, we do not lay down as univerſally true; for beſides the two elevated belts, the whole ſurface of the earth is covered with innumerable mountains, either detached, or in a continued chain. In America, the Oroonoko and the Amazons run towards the line, while the St Lawrence runs towards the 50° of

Lat. N. and the Plata towards 40° Lat. S. We are ſtill too little acquainted with Africa, which is almoſt all contained within the tropics, to form any accurate concluſions concerning this ſubject. Europe and Aſia, which form only one great maſs, appear to be divided by a more elevated belt, which extends from the moſt weſterly ſhores of France to the moſt eaſterly of China, and to the iſland of Sagaleen or Anga-hata, following pretty nearly the 50° of N. Lat. In the new continent, therefore, we may conſider that chain where the Miſſiſippi, the St Lawrence, the Ohio, and the Eſtrechos, take their riſe, as the moſt elevated ſituation in North America: whence the Miſſiſippi flows towards the equator, the St Lawrence towards the NE. and the reſt towards the NW. In the old continent, the belt formerly mentioned, to which we may aſſign about 10° in breadth, may be reckoned from 45° to the 55° of Lat. N.; for in Europe the Tagus, the Danube, the Dnieper, the Don, and the Volga, and in Aſia the Indus, the Ganges, the Meran, the Mecon, the Hoang-ho, and the Yang-tſe-Kiang, deſcending as it were from this elevation, fall into the great reſervoir between the tropics; whilſt towards the N. the Rhine, the Elbe, the Oder, the Viſtula, the Obi, the Janiſei, the Lena, the Indigirka, and the Kowyma, are diſcharged into the northern reſervoir. Judging from thoſe mountains, the height of which has been calculated, and from the immenſe chains with which we are acquainted, we may infer that the higheſt mountains are to be found in this elevated belt. The Alps of Swiſſerland and Savoy extend through the 45°, the 46°, and the 47°. Among them we find St Gothard, Furca, Bruning, Ruſs, Whiggis, Scheidek, Gungels, Galanda, and laſtly, that branch of the Swiſs Alps which reaches Tirol by the name of Arlenberg and Arula. In the late duchy of Savoy are Mont Blanc, the Peak of Argentiere, Cornero, Great and Little St Bernard, Great and Little Cenis, Coupeline, Servin, and that branch of the Savoyard Alps which proceeds towards Italy through the ci-devant duchies of Aoſt and Montferrat. In this vaſt heap of elevated peaks, Mont Blanc and St Gothard are particularly diſtinguiſhed. The Alps, leaving Switzerland and Savoy, and paſſing through Tirol and Carniola, traverſe Saltzbourg, Stiria, and Auſtria, and extend their branches through Moravia and Bohemia, as far as Poland and Pruſſia. Between 47° and 48° we meet with Grimming, the higheſt mountain of Stiria, and Priel, the higheſt in Auſtria. Between 46° and 47°, the Bacher and the Reinſchnicken form two remarkable chains. The upper one, which traverſes the counties of Trencſin, Arrava, Scepus, and the Kreyna, ſeparates Upper Hungary from Sileſia, Little Poland, and Red Ruſſia; the inferior one traverſes Upper Croatia, Boſnia, Servia, and Tranſilvania, ſeparates Lower Hungary from Turkey in Europe, and meets the upper chain behind Moldavia, on the confines of Little Tartary. To conceive an idea of the great height of this Alpine belt, we need only obſerve, that the greateſt depth of the wells at Schemnitz is 200 toiſes; and yet it appears, from the barometrical calculations of the learned M. Noda, that the greateſt depth of theſe mines is 286 toiſes higher than Vienna. The granito-argillous mountains of Schemnitz, and of the whole of this metallic diſtrict, are inferior, however, to the Carpathian mountains. Mount Kirvany in Arrava, and the Carpathian mountains between Red Ruſſia and the Kreyna, appear by their great elevation to overtop the whole of the upper Alpine chain. In the inferior chain are likewiſe mountains of an extraordinary height; among others, Mount Mediednik, which gives its name to a chain extending far into Boſnia; and Mount Hæmus, celebrated among the ancients. In ſhort, this extenſive chain reaches into Aſia, and is there confounded with another chain no leſs famous, which, following exactly the 50° of Lat. runs through the whole of Aſia. Dr Pallas places the head of the mountains of Oural, between the ſources of the Taik and the Bielaia, about Lon. 47°, and Lat. 53°. Here the European Alps, after having traverſed Europe, and ſent off various branches, loſe their name, which is changed into that of the Ouralic or Uralian mountains, and begin their courſe in Aſia. This lofty chain, which ſeparates Great Bulgaria from the deſerts of Iſchimſka, proceeds through the country of the Eleuths, follows the courſe of the Irtis, approaches the lake Teleſkaia, and afterwards forms a part of the ſame ſyſtem of mountains with the Altaic chain. There they give riſe to the Oby, the Irtis, and the Jeniſei, which begin their courſe about Lat. 50° N. and fall into the Frozen Ocean. The Altaic chain, after having embraced and united all the rivers which ſupply the Jeniſei, is continued under the name of SAIANES, without interruption, as far as Lake Baikal. The extenſion of this chain to the S. forms that immenſe and elevated plain which is loſt in Chineſe Tartary, which may be compared with the only plain in Quito, and which is called *Gobi* or *Chamo*. The Altaic afterwards interpoſing between the ſource of the Tchikoi, and of the rivers which ſupply the Amur or Sagaleen, riſes towards the Lena, approaches the city Jakuck beyond Lat. 60°, runs from that to the ſea of Kamtſchatka, turns round the Ochockoi and Penſink gulphs, joins the great marine chain of the Kuriſle iſles near Japan, and forms the ſteep ſhores of Kamtſchatka, between Lat. 55° and 60°. Such is the direct courſe of the high mountains conſtituting the belt which, we imagine, is to be found in the northern hemiſphere, and which, after becoming lower, paſſing under the ſea, and forming, by means of their elevated peaks, that archipelago of iſlands which derives its name from the unfortunate Bhering, again riſe, and enter North America on the W. about the Straits of Anian. After running in the ſame parallel, and giving riſe to the Ohio, the Longue, St Lawrence, and the Miſſiſippi, they are loſt in Canada. From the E. ſhores of America to the W. ſhores of Europe, we find a vaſt interruption. Perhaps the chain was at firſt continued completely round the globe; but extraordinary revolutions, by ſeparating the old and new continents, may have occaſioned this diviſion, and left nothing but the Azores and ſome detached points as a monument of what formerly exiſted, till we come to the Britiſh iſles. Before we proceed to inquire whether a belt of a ſimilar elevation exiſts in the ſouthern hemiſphere, we may remark thoſe branches and ramifications which the great northern Alpine belt ſends forth, both towards the equator and the antarctic pole. Theſe chains, which gradually become lower as they approach the boundary towards which they tend, afford a ſufficient proof that the equator is not the moſt elevated part of the earth. The European Alps produce three principal chains, which run towards the equator, and ſome ſmaller ones running towards the pole. The firſt ſouthern chain is ſent out through the late Dauphiné, traverſes the ci-devant provinces of Vivarais, Lyonnois, Auvergne, Cevennes, and Languedoc; and, after joining the Pyrenees, enters Spain. There it divides into three ramifications, one of which runs through Navarre, Biſcay, Arragon, Caſtile, Marche, and Sierra Morena, and extends into Portugal. The other, after traverſing Andaluſia and Granada, and forming a number of Sierras, again makes its appearance, beyond the Straits of Gibraltar, in Africa, and coaſts along its northern ſhores under the name of Mount Atlas. The 2d principal chain of the Alps paſſes out through Savoy and Piedmont, ſpreads its roughneſſes over Genoa and Parma, forms the belt of the Appenines; and after often changing its name, and dividing Italy into two parts, terminates in the kingdom of Naples and in Sicily, exhibiting volcanoes in every part of its courſe. The 3d chain is ſent off from Hungary, and ſcatters innumerable mountains over all Turkey in Europe, as far as the Morea and Archipelago at the bottom of the Mediterranean. The northern branches, though ſmaller at firſt, are no leſs clearly defined; and ſome of them even extend their ramifications as far as the Frozen Ocean. An Alpine branch, iſſuing from the late Savoy through Gex, proceeds through the ci-devant Franche Comte, Suntgaw, Alſace, the Palatinate, and Veterabia. Another iſſues from the territory of Saltzbourg, paſſes along Bohemia, enters Poland, ſends off a ramification into Pruſſia towards the deſerts of Waldow and after having paſſed through Ruſſia, diſappears in the government of Archangel. The Aſiatic Alps ſend forth in like manner ſeveral branches both to the S. and N. The Ouralic mountains, between the ſources of the Bielaia and the Jaik, produce three principal branches; the firſt, including the Caſpian Sea in one of its diviſions, enters Circaſſia through the government of Aſtracan, paſſes through Georgia under the name of Caucasus, ſends many ramifications to the weſt into Aſiatic Turkey, where it exhibits the mountains Tſchilder, Ararat, Taurus, Argee, and many others in the three Arabias; while the other diviſion, paſſing between the Caſpian Sea and the lake Aral, penetrates through Choraſan into Perſia. The 2d branch, taking a more eaſterly direction, leaves the country of the Eleuths, reaches Little Bucharia, and forms the ramparts of Gog and Magog, and the celebrated mountains formerly known by the name of *Caf*, which M. Bailly has made the ſeat of the war between the Dives and the Peris. It traverſes Caſgar and Turkeſtan, enters through Lahore into the Mogul territory, and after giving riſe to the elevated deſert of Chamo, forms the W. peninſula of India. While theſe two branches run towards the S. the 3d branch of the Ouralic chain riſes towards the N. following almoſt the 79° of Lon. and forms a natural boundary between Europe and Aſia, without bounding the Ruſſian empire. This chain, after coming oppoſite to Nova Zembla, divides into two conſiderable branches. The one, running NE. paſſes along the Arctic ſhores; the other, proceeding NW. meets the northern European chain, traverſes Scandinavia in the ſhape of a horſe-ſhoe, covers the low lands of Finland with rocks, and, Dr Pallas ſays, appears to be continued from the north cape of Norway through the marine chain of Spitzbergen, ſcattering iſlands and ſhelves perhaps throughout the northern ocean, that, paſſing through the pole, it may join the N. and E. points of Aſia and North America. The Ouralic, which, in the country of the Moguls, becomes the Altaic chain, proceeds towards the equator. After forming the mountains and caverns wherein, as we are told, the aſhes of the Mogul emperors of the race of Jenghiz Khan are depoſited, together with the vaſt plain of Chamo, conſiſting of arid ſand, and the frightful rocks and precipices of Thibet, which form the myſterious and deſert retreats of the Grand Lama, it croſſes the Ava and Menan, contains in its ſubdiviſions the kingdoms of Ava, Pegu, Laos, Tonquin, Cochin-China, and Siam, ſupports the peninſula of Malacca, and overſpreads the Indian ocean with the iſles of Sonda, the Moluccas, and the Philippines. From the borders of lake Baikal and the province of Selinginſkoy, a branch is detached, which ſpreads over Chineſe Tartary and China, is continued into Corea, and gives riſe to the iſlands of Japan. The great chain having extended to the N. near Jakuck, on the banks of the Lena, ſends off one of its branches to the NW. which paſſing between the two Tunguſta, is loſt in marſhy grounds lying in the northern parts of the province of Jenniſſeiſkoy. The ſame chain, after it has reached the eaſtern part of Aſia, is loſt in the icy regions of the north about Nos-Tſchalatſkoy or the icy Promontory, and Cape Czuczenſkoy. An immenſe extent of ocean ſeems to occupy the whole Antarctic part of the globe. The greateſt S. latitude of the old continent is not more than 34° and South America ſcarcely extends to 55°. In vain did the enterpriſing Cook attempt to diſcover regions towards the pole; his progreſs was conſtantly interrupted by tremendous mountains and fields of ice. Beyond the 50° no land and no habitation is to be found. The iſlands of New Zealand are the fartheſt land in theſe deſert ſeas; and yet the S. cape of Taral-Poenamoo extends only to 48°: We do not mention Sandwich-land, which is ſituated in the 58°, becauſe it is too ſmall and too low. The Cordilleras however become higher as they advance to the Straits of Magellan; and Terra del Fuego, which lies in 55°, is nothing but a maſs of rocks of prodigious elevation. America, however, exhibits to our view elevated points, whence chains of mountains are diſtributed in different directions over the whole ſurface of the new continent. In the ſouthern hemiſphere; this elevated belt is nearer the equator; and though it does not extend to 50°, it is met with and may be accurately traced between 20° 30°. The high mountains of Tucuman an

Paraguay, which interſect South America about Lat. 25° may be conſidered as the American Alps. We may diſtinguiſh an elevated belt all along this parallel. In Africa, Monomotapa and Caffraria are covered with very high mountains, from which large rivers deſcend. In the Pacific Ocean, we find New Holland, New Caledonia, the New Hebrides, and the Friendly and the Society iſlands, under the ſame parallel. We may, therefore, with ſufficient propriety, diſtinguiſh this parallel by the name of the *Southern Alps*, as we have already diſtinguiſhed the elevated belt of the 50° of N. Lat. by that of the *Northern Alps*. In America, the Plata, which after a courſe of 500 leagues falls into the ocean at the 35° of S. Lat. the Parana, which riſes from the mountains of the Arapes, and falls into the Plata at Corriente; the great number of rivers which flow into that of the Amazons, ſuch as the Paraba, which receives in its courſe the tribute of more than 30 other rivers; the Madera, the Cuchirara, the Ucayal, &c. &c. all deſcend from theſe ſouthern Alps. From theſe Alps likewiſe three conſiderable branches of mountains are detached, called ANDES or CORDILLERAS.—The firſt branch, which extends towards the S. and paſſes out from Paraguay through Tucuman, ſeparates Chili from theſe provinces and from Chimito, and is continued through the Terra Magellanica, as far as Terra del Fuego. The 2d branch, directing its courſe towards the equator, traverſes Peru, bounds the Spaniſh miſſions, enters Terra Firma through Popayan, and unites S. and N. America by the iſthmus of Panama. The 3d diviſion, iſſuing from Paraguay through Guayra and the territory of St Vincent, traverſes Brazil, diſtributes ramifications into Portugueſe, French, and Dutch Guiana, croſſes the Oroonoko, forms the mountains of Venezuela, and near Carthagena meets the 2d branch coming from Popayan. We have ſuppoſed, that the elevated belt of North America, was ſituated about 45° of N. Lat. and there we recognized the continuation of the northern Alps of the old continent. This chain likewiſe ſends forth conſiderable branches on both ſides. One is detached acroſs the ſources of the Miſſiſſippi, the Belle Riviere, and the Miſſouri, and at the entrance of New Mexico divides, to form California on the W. and the Apalachian mountains on the E. Thence proceeding through New Biſcay, the audience of Guadalaxara, Old Mexico, and Guatimala, it meets at Panama the S. branch, which is part of the Alps of Paraguay. The 2d branch, following the courſe of the Miſſiſſippi, ſeparates Louiſiana from Virginia, ſerves as a bulwark to the United States of America, forms the Apalachian mountains in Carolina, and at laſt, traverſing E. Florida, incloſes the Gulph of Mexico with the Great and Little Antilles. In the north we can trace the branches of the elevated belt; on one ſide obſerve them proceeding towards Canada, directing their courſe through Labrador to Hudſon's Straits, and at length confounded with the rocks of Greenland, which are covered with eternal ſnow and ice. On the other ſide, we ſee them riſing through the country of the Aſſinipoels and the Kriſtinos, as far as Michinipis and the northern Archipelago. We have thus traced the directions of the great chains of mountains. There are certain projecting and pretty ſenſible points on the globe, which appear to ſupply every region with great rivers and high mountains. The Alps of Switzerland and Savoy in Europe, the Ouralic mountains in Aſia (which M. Bailly reckons the higheſt on the globe), the Andes of Tucuman and Paraguay in S. America, and the high countries, whence the Miſſiſſippi, the Saint Lawrence, and the Belle Riviere deſcend, may be conſidered as ſome of theſe.

(9.) MOUNTAINS, HEIGHTS OF THE HIGHEST PRIMITIVE. According to M. Pontopiddan, the higheſt mountains in Norway are 3000 toiſes in height. According to M. Brovallius, the higheſt mountains in Sweden are 2333 toiſes. But theſe calculations are thought erroneous. From the Memoirs of the Academy of Sciences at Paris, it appears, that the mountains of France moſt elevated above the ſurface of the Mediterranean are the Puy-de-Dome, which is 817 toiſes, and the Mont d'Or, which is 1048 toiſes. Mount Cantal is 993 toiſes high; Mount Ventoux is 1036; the S. peak of Canigou in the Pyrenees, according to M. de Rochblave, is 1442; and St Barthelemi 1384. M. Needham obſerves, that the higheſt Alps in Savoy are the Great St Bernard, which is 1274 toiſes; Mount Sérené, which is 1283; and Mount Tourné, which is 1683. The peak of Argentiere is 2094 toiſes. Mont Blanc is 2213, or, according to M. Shuckburgh, 2447 toiſes one foot above the level of the Mediterranean. (See BLANC, N° III. § 4.) The altitude of the Alps of Switzerland has been aſcertained by different philoſophers. (See GLACIERS.) St Gothard is ſtated by ſome at 1650, by others 2750 toiſes (ſee GOTHARD), and Lignon, near the lake of Como, NE. is 1486 toiſes in height. See eſtimates of the heights of many other mountains in the *Table comparative des hauteurs des principales montagnes*, by M. Paſumot (*Journ. de Phyſique*, Sept. 1783.) Throughout the globe we will not perhaps meet with higher mountains than thoſe of the CORDILLERAS, or *Andes*, in S. America. See ANDES, § 5—6. The principal ſummits of theſe extraordinary mountains, which are ſituated near Quito, and are conſtantly covered with ſnow, though they lie under the equator, have the following geometrical elevations above the level of the ſea: Quito-Capitate, 1707 toiſes; El-Corafon, 2470; Cotacatche, 2570; Ek Atlas, 2730; and Noyamble-orcu, under the line, 3030. All the other mountains have been, or ſtill are, volcanoes: viz. Pinchincha, 2430; Cargavi-raſo, 2450; Sinchonalagoa or Sinchoulagoa, 2570; Sangai, 2680; Illinika, 2717; Kotopaxi, 2950; Antiſana, 3020; Cagambeorcou, under the line, 3030; Chimborazo, 3220; which laſt is one of the largeſt and probably the higheſt in the world; being 20,282 feet high. It is ſeen from the gulph of Guayaquil, which is more than 180 miles diſtant. See ANDES, § 6; and CHIMBORAZO. Other very elevated mountains are Mount SINAI in Japan; CAUCASUS in Aſia; the S. peak of the Pyrenees; the peak of TENERIFFE in one of the Canary iſlands, which, according to M. Bouguer, is 2100 toiſes, but according to later obſervations, made by Meſſrs Verdun, Borda, and Pingre, in 1754, is only 1904 toiſes above the ſea-level; Mount ÆTNA in Sicily is 1672 toiſes;

St George's peak in the AZORES; *Adam's Peak* in CEYLON; the Mountains of the MOON; Mounts ATHOS, OLYMPUS, TAURUS, and Emaus; Mount CENIS in the Alps, on the road from France to Italy, is 1460 toiſes; the Great and Little ATLAS; and many others, on the top of which we feel, even in the middle of ſummer, a more piercing cold than that of the ſevereſt froſts of our climates. (See theſe articles.)

(10.) **MOUNTAINS, IMPORTANT USES OF.** Mountains evidently anſwer very important purpoſes. Some of them, vomiting out fire or ſmoke, lava, and ſulphur, indicate that they in ſome meaſure anſwer the purpoſe of a chimney to give vent to ſomething within the earth, which, if confined, would burſt it in pieces (ſee VOLCANO.) Of this kind are Mount Hecla in Iceland, Ætna in Sicily, Veſuvius in Naples, Pichincha and Cotopaxi in America, &c. Others, the ſummits of which reach into the clouds, attract and abſorb the vapours of the ſea, &c. which float in the air. Abbé Palaſſon obſerves, that ſtorms are moſt frequent at the foot of thoſe high mountains, which form extenſive chains. Their enormous maſſes arreſt and fix tue different meteors as they are formed. The clouds, in like manner, driven by the winds from different points of the horizon, there meet with impenetrable barriers, are there accumulated in great quantities, and remain ſuſpended on theſe bulwarks of the globe's ſurface, till the agitation of the atmoſphere ſucceeding the calm, produces ſtorms, which are ſo much the more terrible, that they cannot be diſperſed without great difficulty. They are commonly repelled from the mountains; and then ſpread over whole countries, diſſolve in rain with peals of thunder, or fall down in deſtructive ſhowers of hail, fatal to the produce of the fields. This ſcourge is peculiarly dreadful during ſpring and ſummer, when a ſufficient quantity of ſnow remains on the mountains to cool the atmoſphere. Some chains of mountains have openings; in others they are wanting: of the former kind are the ſtraits of Thermopylæ, the Caſpian ſtraits, the paſs of the Cordilleras, &c. Thoſe ſpaces which ſeparate the tops of mountains are ſo many baſons deſtined for the reception of the condenſed miſts, and of the clouds precipitated into rain. The bowels of mountains appear to be great and inexhauſtible reſervoirs, and to contain ſubterraneous canals and lateral openings naturally formed, ſo that animals may be ſupplied with drink, that the earth may be fertilized, and that nouriſhment may be afforded for the growth of vegetables. The ſtreams and rivers deſcend from the ridges of mountains, the declivities of which form ſo many inclined planes. Thus we find the Alps give riſe to the Rhine, the Danube, the Rhone, and the Po. With regard to the wonderful ſtructure, by means of which ſo many advantages are obtained, ſee the article STRATA, EARTH, CREATION, &c. Mountains of the firſt order form vaſt ſolitudes and horrid deſerts, where the habitations of men are not to be ſeen, and their footſteps are ſeldom to be traced. They form the common retreat of a multitude of wild beaſts, which are ſubſervient to our uſe: there the bear, the lynx, the ermine, the martin, the fox, and many other animals, whoſe ſkins we employ for furs, take up their abode; and thither the eagle and the vulture reſort in ſafety. Mountains likewiſe afford nouriſhment to rein-deer, buffaloes, fallow-deer, roe-deer, and chamois; and they are viſited by birds of paſſage which, under the guidance of inſtinct, follow the ſhorteſt road to the place of their deſtination. They produce medicinal plants, which ſeldom or never grow elſewhere. In Switzerland they are alſo covered with deep foreſts, which, by the great height of the trees, announce their antiquity. They afford both timber and fuel, and ſupply the inhabitants with abundance of excellent paſture for cattle during the whole ſummer. The moſt precious ſtones, both for brilliancy and hardneſs, acquire their forms and colours in the fiſſures of the rocks; the internal rents of mountains are filled, and in a manner cemented by different metallic ſubſtances; while the grottoes are furniſhed with numerous congelations, ſhining cryſtals, and ſubſtances of an extraordinary nature and figure. In ſhort, every thing concurs to ſhow, that the exiſtence of mountains is abſolutely neceſſary; and that to acquire a proper knowledge of them, they muſt be conſidered in many different points of view. (See *Eſſais ſur l' Etude des Montagnes. Journ. de l' Abbe Rozier.* Nov. 1773.)

(11.) **MOUNTAINS, INTERNAL COMPOSITION OF.** Mountains with flat ſummits ſometimes reſt on the baſe of primitive mountains; and contain marble, foſſils, and limeſtone. When mountains of the ſame kind poſſeſs a round and more regular ſhape, they conſiſt of chalk and other calcareous and friable ſubſtances arranged in ſtrata. Granite argillaceous mountains, like thoſe of Shemnitz, generally form metallic diſtricts. Hills, compoſed of brown free-ſtone every where preſent irregular points, indicating broken ſtrata and heaps of rubbiſh. Dr Pallas (in the ſyſtematic part of the memoir above mentioned, concerning the ſubſtances of which the higheſt mountains are compoſed) lays it down as an axiom, that the higheſt mountains of the globe, forming continued chains, are compoſed of *granite*, the baſe of which is always a quartz, with a greater or ſmaller mixture of felt ſpar, mica, and ſmall ſchoerls, ſcattered without order, and in irregular fragments of different ſizes. This old rock, and the ſand ariſing from its decompoſition, form the baſe of all continents. GRANITE is found below mountains compoſed of ſtrata (this obſervation is not applicable to the courſes of mountains formed by ſtrata); it conſtitutes the large protuberances, and as it were the heart, of the greateſt Alps in the known world: hence we may with the greateſt probability infer, that this rock forms the principal ingredient in the internal compoſition of our globe. It is never found in regular ſtrata, but in huge maſſes and in ſhapeleſs blocks; its origin is prior to that of all animated beings; it exhibits not the ſmalleſt traces of petrefaction, and ſeems not to have received the leaſt impreſſion from any organized ſubſtance. High eminences, whether in continued chains or in the form of ſteep peaks, are never covered with clayey or calcareous ſtrata, deriving their origin from the ſea; but appear to have been from their very firſt formation above the level of the ocean. The ſides of theſe great chains are for the moſt part covered with ſchiſtous belts, and ſurrounded with mountains of the ſecond and third orders. This is proved by the Ouralic and Altaic chains, which have been traced by Dr Pallas. Such is the ſyſtem propoſed by this author. The high or primitive and ancient mountains, which have exiſted from the beginning of time, are granitous; the ſchiſtous mountains, to which he gives the name of *ſecondary*, have ariſen from the ſides of the primitive by the decompoſition of the granite; and thoſe which he calls *tertiary* mountains, or mountains of the 3d order, are ſubſtances depoſited by the ſea, and raiſed up by volcanoes, or ſwept away by a violent irruption, a powerful inundation, or an univerſal deluge. This hypotheſis concerning the formation of mountains appears to be confirmed by many facts in natural hiſtory.

(12.) **Mountains, Marble.** Of theſe there are great numbers in Egypt, from which, though immenſe quantities have been carried off for the multitude of great works erected by the ancient Egyptians; yet in the opinion of Mr Bruce, who paſſed by them in his journey to Abyſſinia, there is ſtill ſuch an abundant maſs, that it would be ſufficient to build Rome, Athens, Corinth, Syracuſe, Memphis, Alexandria, and half a dozen more of ſuch cities. The firſt mountain of this kind mentioned by Mr Bruce is one oppoſite to Terſowey, conſiſting partly of green marble, partly of granite, with a red bluſh upon a grey ground, and ſquare oblong ſpots. Here he ſaw a monſtrous obeliſk of marble, very nearly ſquare, broken at the end, and nearly 30 feet long, and 19 feet in the face. Throughout the plain there were ſcattered ſmall pieces of jaſper, with green, white, and red ſpots, called in Italy *diaſpro ſanguineo*; and all the mountains upon that ſide ſeemed to conſiſt of the ſame materials. Here alſo were quantities of ſmall pieces of granite of various kinds, as well as porphyry, which had been carried down by a torrent, probably from the ancient quarries. Theſe pieces were white mixed with black ſpots, and red with green veins and black ſpots. All the other mountains on the right hand were of red marble, but no great beauty; thoſe on the oppoſite ſide being green marble, probably of the ſerpentine kind. This, he ſays, was one of the moſt extraordinary ſights he ever ſaw. The former mountains were of a conſiderable height, without a tree, ſhrub, or blade of graſs upon them; and this looked exactly as if it had been covered over with Havannah and Brazil ſnuff. Proceeding farther on, he entered another defile, with mountains of green marble on every ſide. The higheſt he ſaw appeared to be compoſed of ſerpentine marble, having a large vein of green jaſper ſpotted with red running through about one third of its thickneſs. It was extremely hard; ſo that it did not yield to the blows of a hammer, though it was evident that it had formerly been quarried; and there were channels for bringing water, which terminated in this quarry of jaſper; "a proof (ſays Mr Bruce) that water was one of the means uſed in cutting thoſe hard ſtones." On theſe mountains "the porphyry ſhows itſelf by a fine purple ſand without any gloſs upon it. It is mixed with the white ſand and fixed marble of the plains. Green and unvariegated marble is alſo found in the ſame mountain with the porphyry. The marble is brittle for ſome inches where the two veins meet; but the porphyry is as hard as in other places." There is likewiſe a kind of red marble with white veins, which our author has ſeen at Rome and in Britain. The common green, called *ſerpentine*, looks as if it were covered with Brazil ſnuff. Along with this green he ſaw two ſamples of the beautiful kind called *Iſabella*; one of them with the yellowiſh caſt of Quaker colour, the other of that bluiſh caſt called *dove colour*; and theſe two ſeemed to divide the mountains with the ſerpentine. Here alſo he ſaw the vein of japer. The marble of greateſt value, however, is that called *Verde Antico*, which is of a dark green colour with white ſpots It is found, like the jaſper, in the mountains of the plain green ſerpentine, and is not diſcoverable by the duſt or any particular colour upon it. Mountains of marble and porphyry are not peculiar to Egypt. They are likewiſe met with in the north of *Scotland*; in the Weſtern Iſles there are ſuch quantities of theſe materials, as, in the opinion of Mr Williams, would be ſufficient to ſerve all Europe.

(13.) **Mountains, method of Measuring the heights of.** See Barometer, § 23.

(14.) **Mountains, natural descriptions of.** Almoſt all the tops of the higheſt mountains are bare and pointed, which proceeds from their being continually aſſaulted by ſtorms and tempeſts. All the earthy ſubſtances with which they might have been once covered, have for ages been waſhed away from their ſummits; and nothing is left but immenſe rocks, which no tempeſt has hitherto been able to deſtroy. Nevertheleſs, time is every day making depredations, and huge fragments are ſeen tumbling down the precipice, either looſened from the ſummit by the froſt or rains, or ſtruck down by lightning. Nothing can exhibit a more terrible picture than one of theſe enormous maſſes, commonly larger than an houſe, falling from its height with a noiſe louder than thunder, and rolling down the ſide of the mountain. Dr Plot tells us of one in particular, which being looſened from its bed, tumbled down the precipice, and was partly ſhattered into a thouſand pieces. But one of the largeſt fragments of it, ſtill preſerving its motion, travelled over the plain below, croſſed a rivulet in the midſt, and at laſt ſtopped on the other ſide of the bank! Theſe fragments are often ſtruck off by lightning and ſometimes undermined by rains; but the moſt uſual manner in which they are diſunited from the mountain is by froſt: the rains, inſinuating between the interſtices of the mountain, continue there until there comes a froſt; and then, when converted into ice, the water ſwells with an irreſiſtible force, and produces the ſame effect as gunpowder, ſplitting the moſt ſolid rocks, and thus ſhattering the ſummits of the mountain. Sometimes whole mountains, are, by various cauſes, diſunited from each other. In many parts of the Alps, there are amazing clefts, the ſides of which ſo exactly correſpond with the oppoſite, that no doubt can be entertained of their having been once joined. At Cajeta in Italy, a mountain was ſplit in this manner by an earthquake; and there is a paſſage opened through it, that appears as if done by the induſtry of man. In the Andes theſe breaches are often ſeen. That at THERMOPYLÆ in Greece has been long famous. The mountain of the Troglodytes in Arabia has thus a paſſage through it; and that in the late duchy of Savoy, which nature began and which Victor Amadeus completed, is an inſtance of the ſame kind. "In June, 1714, a part of the mountain of Diableret, in the diſtrict of Valais in France, ſuddenly fell down, between 2 and 3 P. M. the weather being very calm and ſerene. It was of a conical figure, and deſtroyed 55 cottages in the fall. Fifteen perſons, with about 100 beaſts, were alſo cruſhed beneath its ruins, which covered an extent of a league ſquare. The duſt it occaſioned inſtantly covered all the neighbourhood in darkneſs. The heaps of rubbiſh were more than 300 feet high. They ſtopped the current of a river that ran along the plain, which now is formed into ſeveral new and deep lakes. There appeared, through the whole of this rubbiſh, none of thoſe ſubſtances that ſeemed to indicate, that this diſruption had been made by means of ſubterraneous fires. Moſt probably, the baſe of this rocky mountain was rotted and decayed, and thus fell, without any extraneous violence. In 1618, the town of Fleurs in France was buried beneath a rocky mountain, at the foot of which it was ſituated Such accidents are produced by various cauſes; by earthquakes, by being decayed at the bottom, or by the foundation of one part of the mountain being hollowed by waters, and, thus wanting a ſupport, breaking from the other. Thus it generally has been found in the great chaſms in the Alps; and thus it almoſt always is in thoſe diſruptions of hills, called *land-ſlips*. Theſe are nothing more than the ſliding down of an higher piece of ground, diſrooted from its ſituation by ſubterraneous inundations and ſettling upon the plain below There is not an appearance in nature that ſo much aſtoniſhed our anceſtors as theſe land-ſlips. To behold a large upland, with its houſes, corn, and cattle, at once looſened from its place, and floating as it were upon the ſubjacent water; to behold it quitting its ancient ſituation, and ſailing forward like a ſhip, is certainly one of the moſt extraordinary appearances that can be imagined; and, to a people ignorant of the powers of nature, might well be conſidered as a prodigy. Accordingly, we find all our old hiſtorians mentioning it as an omen of approaching calamities. In this more enlightened age, however, its cauſe is well known; and, inſtead of exciting ominous apprehenſions in the populace, it only gives riſe to ſome very ridiculous law-ſuits among them, about whoſe the property ſhall be; whether the land which has thus ſlipt off ſhall belong to the original poſſeſſor, or to him upon whoſe grounds it has encroached and ſettled. In the lands of Slatberg, in Ireland, there ſtood a declivity gradually aſcending for near half a mile. On the 10th March, 1713, the inhabitants perceived a crack on its ſide, like a furrow made with a plough, which they imputed to the effects of lightning, as there had been thunder the night before. However, on the evening of the ſame day, they were ſurpriſed to hear an hideous confuſed noiſe iſſuing all around from the ſide of the hill; and their curioſity being raiſed, they reſorted to the place. There, to their amazement, they found the earth for near five acres all in gentle motion, and ſliding down the hill upon the ſubjacent plain. This motion and the noiſe continued the remaining part of the day and the whole night: the noiſe proceeding, probably, from the attrition of the ground beneath. The day following, this ſtrange journey down the hill ceaſed; and above an acre of the meadow below was found covered with what before compoſed a part of the declivity. But ſuch tremendous land-ſlips, when a whole mountain's ſide deſcends, happen very rarely. There are ſome of another kind, however, much more common; and as they are always ſudden, much more dangerous. Theſe are ſnow ſlips, well known, and greatly dreaded by travellers. It often happens, that when ſnow has long been accumulated on the tops and on the ſides of mountains, it is borne down the precipice either by tempeſts or its own melting. At firſt, when looſened, the volume in motion is but ſmall: but it gathers as it continues to roll; and by the time it has reached the habitable parts of the mountain, it is generally grown of enormous bulk. Whereever it rolls, it levels all things in its way, or burie them in unavoidable deſtruction. Inſtead of rolling, it ſometimes is found to ſlide along from the top; yet even thus it is generally fatal. Nevertheleſs, we had an inſtance a few years ago, of a ſmall family in Germany that lived for above a fortnight beneath one of theſe ſnow-ſlips. Although they were buried during that whole time in utter darkneſs, and under a bed of ſome hundred feet deep, yet they were luckily taken out alive, the weight of the ſnow being ſupported by a beam that kept up the roof, and nouriſhment ſupplied them by the milk of a ſhe-goat that was buried under the ſame ruin.

(15.) **MOUNTAINS OF THE LIONS**, mountains of Africa, which divide Nigritia from Guinea, and extend as far as Ethiopia. They were ſtyled by the ancients *the mountains of God*, on account of their being greatly ſubject to thunder and lightning.

(16.) **MOUNTAINS OF THE MOON**, a chain of mountains in Africa, between Abyſſinia and Monomotapa, and receiving the above denomination from their great height.

(17.) **MOUNTAINS OF THE MOON.** See MIS-SLIAB

(18.) **MOUNTAINS, TEMPERATURE, AND PRODUCE OF THE HIGHEST.** The ſummits of very high mountains, even in the warmeſt climates, are conſtantly covered with ſnow, while the inhabitants of the plain enjoy a temperate atmoſphere, or are ſubject to extreme heat. The height of theſe mountains, added to their being placed on the moſt elevated parts of the globe, is the chief cauſe of the phenomena peculiar to them. In that part of Aſia which is ſeparated by the chain, called the *Ghauts*, there are two very different ſeaſons at one and the ſame time. (See BALAGATE, § 2; and GAUTS.) The traveller in the ALPS generally experiences, even in ſummer, all the four ſeaſons of the year. In the Andes we meet with a change of temperature no leſs curious. (See ANDES, § 2—5). There are many other mountainous countries in which we paſs at once from a ſerene ſky to dreadful ſtorms and tempeſts. It cannot therefore be doubted, that mountains have a great influence on the temperature of the countries to which they belong, by ſtopping the courſe of certain winds, by forming barriers to the clouds, by reflecting the ſun's rays, and by ſerving as elevated conductors to the electricity of the atmoſphere. It has been ſaid that on the peak of Teneriffe brandy loſt its ſtrength, wine became almoſt inſipid, pepper, ginger, and ſalt, had little or no taſte, but that Canary wines ſtill retained their taſte on that mountain; but Meſſrs Lamanon and Mongez, who viſited this peak in 1785, aſſure us, that the flavour and taſte of liquors appeared to have ſuſtained no loſs at that height. (See *Journ. de Phyſique* for Nov. 1776, and for Aug. 1785.) At the foot, and ſometimes at the middle, of thoſe lofty mountains, the tops of which are always covered with ſnow, we often find ſprings which begin to run in May, and dry up in Sept. When the ſun approaches near enough the tropic to warm the ſummits of theſe mountains, the ſnow with which they are covered melts, filtrates through their anterior part, and iſſues forth at their baſe. The only trees which grow on mountains of this kind are firs, pines, and other reſinous trees; and the graſs becomes ſhorter towards their ſummits.

(19.) MOUNTAINS, WHITE, a range of mountains in New Hampſhire, reckoned the higheſt in New England. They are viſible on land 80 miles diſtant, and are the firſt obſerved at ſea. Their Indian name is *Agiochochook*. The number of ſummits is unknown, but ſeven are viſible at once. Of theſe the higheſt is called Mount Waſhington. The whole circuit of them is not leſs than 50 miles. Their height above an adjacent meadow is reckoned to be about 5500 feet, and the meadow is 3500 feet above the level of the ſea. The ſnow and ice cover them 9 or 10 months in the year; during which time they exhibit that bright appearance from which they are denominated *white*. From this ſummit in clear weather is exhibited a noble view, extending 60 or 70 miles in every direction. Although they are more than 70 miles within land, they are ſeen many leagues off at ſea, and appear like an exceeding bright cloud in the horizon. Theſe immenſe heights, being copiouſly repleniſhed with water, afford a variety of beautiful caſcades. Three of the largeſt rivers in New England receive a great part of their waters from them. The *Amanooſuck* and *Iſrael*, two principal branches of Connecticut, fall from their W. ſide. The PEABODY, a branch of the Amariſcogen, falls from the NE. ſide; and almoſt the whole of the SACO deſcends from the S. ſide. The higheſt ſummit of theſe mountains is about lat. 44° N.

(20.) MOUNTAINS, WRITTEN, MOUNTAINS OF INSCRIPTIONS, or JIBBEL EL MOKATTEB, a mountain or chain of mountains in the wilderneſs of Sinai; on which, for a great extent of ſpace, the marble of which the mountain conſiſts is ſaid to be inſcribed with innumerable characters, reaching from the ground ſometimes to the height of 12 or 14 feet. Theſe were mentioned by a Greek author in the 3d century, and ſome of them have been copied by Pococke, Montague, and other late travellers; notwithſtanding which, there is ſtill a very great uncertainty even of the *exiſtence* of ſuch mountains. The vaſt number of theſe inſcriptions, the deſart place in which they are found, and the length of time requiſite for executing the taſk, induced a notion that they are the work of the Iſraelites during their 40 years wandering in the wilderneſs. Others are of opinion that they conſiſt merely of the names of travellers and the dates of their journeys. M. Niebuhr, who viſited this country in Sept. 1762, made every attempt in his power, though without ſucceſs, to obtain a ſight of this celebrated mountain. After much vain inquiry, he was at laſt conducted to ſome rocks upon which there were inſcriptions in unknown characters. They are moſt numerous in a narrow paſs between two mountains named *Om-er-ridſhein*; and, ſays M. Niebuhr, "the pretended Jibbel el Mokatteb may poſſibly be in its neighbourhood." Some of theſe inſcriptions were copied by our author; but he does not look upon them to be of any conſequence. When M. Niebuhr arrived at laſt at the mountain to which the ſhiek had promiſed to conduct him, he found no inſcription, but on climbing up to the top, he found an Egyptian cemetery, the ſtones of which were covered with hieroglyphics. The tomb-ſtones were from 5 to 7 feet long, ſome ſtanding on end and others lying flat; and "the more carefully they are examined (ſays he), the more certainly do they appear to be ſepulchral ſtones, having epitaphs inſcribed on them." The tranſlator of Volney's travels aſcribes theſe inſcriptions to the pilgrims who viſit Mount Sinai; but they ought ſurely to have been written in a language which *ſomebody* could underſtand; but from the copies that have been taken of them by Dr Pococke and others, it does not appear that they could be explained by any perſon. When Dr Clayton, biſhop of Clogher, viſited this part of the world about 1783, he expreſſed the greateſt deſire to have the matter concerning theſe written mountains aſcertained, and even made an offer of 500l. Sterling to any literary perſon, who would undertake the journey, and endeavour to decypher the inſcriptions; but no ſuch perſon appeared.

* MOUNTAINEER. *n. ſ.* [from *mountain.* 1. An inhabitant of the mountains.—A few *mountaineers* may eſcape, to continue the human race; and yet illiterate ruſtics, as *mountaineers* always are. *Bentley.*—

Amiternian troops, of mighty fame,
And *mountaineers*, that from Severus came. *Dryd.*

2. A ſavage; a free-booter; a ruſtic.—

Yield, ruſtic *mountaineer*,
No ſavage, fierce banditti, or *mountaineer*,
Will dare to ſpoil her virgin purity. *Milton.*

* MOUNTAINET. *n. ſ.* [from *mountain.*] A hillock; a ſmall mount. Elegant, but not in uſe.—Her breaſts ſweetly roſe up like two fair *mountainets* in the pleaſant vale of Tempe. *Sidney.*

* MOUNTAINOUS. *adj.* [from *mountain.*] 1. Hilly; full of mountains.—The aſcent of the land from the ſea to the foot of the mountains, and the height of the mountains from the bottom to the top, are to be computed, when you meaſure the height of a mountain, or of a *mountainous*

land, in reſpect of the ſea. *Burnet.* 2. Large as mountains; huge; bulky.—

What cuſtom wills in all things, ſhould we do't,
Mountainous error would be too highly heapt
For truth to o'erpeer. *Shakeſp.*

On earth, in air, amidſt the ſeas and ſkies,
Mountainous heaps of wonders riſe;
Whoſe tow'ring ſtrength will ne'er ſubmit
To reaſon's batteries, or the mines of wit. *Prior.*

3. Inhabiting mountains.—In deſtructions by deluge and earthquake, the remnant which hap to be reſerved are ignorant and *mountainous* people, that can give no account of the time paſt. *Bacon.*

* MOUNTAINOUSNESS. *n. ſ.* [from *mountainous.*] State of being full of mountains.—Armenia is ſo called from the *mountainouſneſs* of it. *Brerewood.*

(1.) * Mountain-Parsley. *n. ſ.* [*oreoſelinum,* Lat.] A plant.

(2.) Mountain Parsley. See Athamanta.

(1.) * Mountain-Rose. *n. ſ.* [*chamærhododendron,* Lat.] A plant.

(2.) Mountain Rose. See Rosa, N° 2.

* MOUNTANT. *adj.* [*montant,* Fr.] Riſing on high.—

Hold up, you ſluts,
Your aprons *mountant*; you're not oathable,
Although I know you'll ſwear. *Shak.*

Mount Blanc. See Blanc, N° II. and III.

* MOUNTEBANK. *n. ſ.* [*montare in banco,* Ital.] 1. A doctor that mounts a bench in the market, and boaſts his infallible remedies and cures.—

I bought an unction of a *mountebank*
So mortal, that but dip a knife in it,
Where it draws blood, no cataplaſm ſo rare,
Can ſave the thing from death. *Shak.*

She, like a *mountebank,* did wound
And ſtab herſelf with doubts profound,
Only to ſhew with how much pain
The ſores of faith are cur'd again. *Hudibras.*

But Æſchylus, ſays Horace in ſome page
Was the firſt *mountebank* that trode the ſtage. *Dryden.*

—It looks like a *mountebank* to boaſt infallible cures. *Baker.* 2. Any boaſtful and falſe pretender.—

As nimble jugglers, that deceive the eye,
Diſguiſed cheaters, prating *mountebanks,*
And many ſuch like libertines of ſin. *Shak.*

—There are *mountebanks,* and ſmatterers in ſtate. *L'Eſtrange.*—Nothing ſo impoſſible in nature but *mountebanks* will undertake. *Arbuthnot.*

To Mountebank. *v. a.* [from the noun.] To cheat by falſe boaſts or pretences.—

I'll *mountebank* their loves,
Cog their hearts from them. *Shak.*

MOUNT-EDGECOMB, or }
(1.) MOUNT-EDGECUMB, } a mountain of Devonſhire, on the W. coaſt of the entrance into Plymouth harbour.

(2) Mount-Edgecumbe, a prodigious high peak, at the entrance of Cook's ſtrait, in New Zealand, on the W. ſide. Its height is ſuppoſed not to be much inferior to that of the peak of Teneriffe.

* MOUNTENANCE. *n. ſ.* Amount of a thing in ſpace. Obſolete.—

This ſaid, they both a furlong's *mountenance*
Retir'd, their ſteeds to runne an even race. *Spenſ.*

* MOUNTER. *n. ſ.* [from *mount.*] One that mounts.—

They were two gallant *mounters.* *Drayton.*
Few bankers will to heav'n be *mounters.* *Swift.*

MOUNTFORT, William, an Engliſh dramatic author, born in Staffordſhire, in 1659. Cibber ſays he was an excellent comedian. He wrote ſix dramatic pieces. He was murdered by Capt. Hill and Lord Mohun in the Strand, in 1692. Hill fled, and Mohun was acquitted for want of proof.

Mount Gabriel. See Gabriel, N° 2.

MOUNTGARRET, a town of Ireland, in Wexford, Leinſter.

Mount-Grace, a town of Yorkſh. near Thirſk.

Mount Hillary, a mountain of Ireland, in Cork.

Mount-Holy, a town of New Jerſey.

Mount Leinster, a mountain of Ireland, in Carlow; with a mineral ſpring on its top.

Mount-Mellick, a town of Ireland, in Queen's County, famous for its manufactures in woollens, cottons, leather, &c. 5 miles N. of Maryborough, and 42 WSW. of Dublin.

Mount Michael. See Michael, N° 12.

Mount-Misery, a town of Connecticut.

Mount-Naging, a town of England, in Eſſex.

Mount-Nugent, a town of Ireland, in Cavan.

Mount Orgueil, or *Gowry Caſtle,* an ancient fort on the E. coaſt of the iſle of Jerſey. It withſtood an attack of the French, in 1374. The celebrated Mr Prynne was impriſoned in it 3 years. It is 5 miles W. of St Helier.

Mount-Pellier, a town of Ireland, in Limerick, Munſter.

Mount-Pleasant, two towns of England: 1. in Hertfordſhire, N. of Eaſt Barnet; 2. in Middleſex, near Hornſey.

MOUNTRATH, a town of Ireland, in Queen's County, which has a good woollen manufacture: 6 miles SW. of Maryborough, and 25 N. of Kilkenny.

Mount's Bay, a bay on the S. coaſt of Cornwall and Devonſhire, between Lizard Point and the Land's End; ſo named from a high rock in it. It has a great Pilchard fiſhery.

Mount-Sorrel, a town in Leiceſterſhire, ſo named from a high mount or ſolid rock adjoining to the town, of a duſky, red, or ſorrel-coloured ſtone, extremely hard. Of rough ſtones hewn out of this rock the town is built. It has a market on Monday. It was noted formerly for its caſtle, and is ſeated on the Stour, over which is a bridge. It is 20 miles SE by S. of Derby, and 105 NW. by N. of London. Lon. 1. 9. W. Lat. 52. 45. N.

Mount-Talbot, a town and mountain of Ireland, in Roſcommon, and prov. of Connaught.

Mount-Vernon, a town of Virginia, 10 miles S. of Waſhington.

* MOUNTY. *n. ſ.* [*montée,* Fr.] The riſe of a hawk.—The ſport which Baſilius would ſhew to Zelmane, was the *mounty* at a heron, which getting up on his waggling wings with pain, as though the air next to the earth were not fit to fly through, now diminiſhed the ſight of himſelf. *Sidney.*

MOUR, a town of Nubia, 180 m. W. of Syene.

MOURA, a town of Portugal, in Alentejo,

containing 2 churches, and 4000 inhabitants; 27 miles SE. of Evora. Lon. 5. 59. W. Lat. 38. 0. N.

MOURAO, a town of Portugal, in Alentejo, on the Guadiana, with a fort; containing 1400 inhabitants.

(1.) MOURGUES, Matthew De, a learned Jeſuit, who wrote in defence of Card. Richelieu's adminiſtration. He died in 1670.

(2.) Mourgues, Michael De, another French Jeſuit, and a man of talents. He wrote treatiſes on geometry, poetry, and other ſubjects; and died in 1713.

(1.) * *To* MOURN. *v. n.* [*murnan*, Sax.] 1. To grieve; to be ſorrowful.—Abraham came to *mourn* for Sarah, and to weep. *Gen.*—My vineyard, being deſolate, *mourneth* unto me. *Jer.* xii.—They made an appointment to *mourn* with him, and to comfort him. *Job* ii. 11.—They rejoice at the preſence of the ſun, and *mourn* at the abſence thereof. *Bacon's Nat. Hiſtory.*—

Next came one
Who *mourned* in earneſt, when the captive ark
Maim'd his brute image, head and hands lopt off. *Milton.*

2. To wear the habit of ſorrow.—

We *mourn* in black; why *mourn* we not in blood? *Shak.*

Friends in ſable weeds appear,
Grieve for an hour, perhaps then *mourn* a year;
And bear about the mockery of woe
To midnight dances and the puppet-ſhow. *Pope.*

3. To preſerve appearance of grief.—Feign thyſelf to be a mourner, and put on *mourning* apparel. 2 *Sam.* xiv. 2.—

Publiſh it that ſhe is dead;
Maintain a *mourning* oſtentation,
Hang mournful epitaphs. *Shak. Much Ado.*

(2.) * *To* Mourn. *v. a.* 1. To grieve for; to lament.—

Comfortleſs, as when a father *mourns*
His children, all in view deſtroy'd at once. *Milt.*

The muſe that *mourns* him now his happy triumph ſung. *Dryden.*

Portius himſelf oft falls in tears before me,
As if he *mourn'd* his rival's ill ſucceſs. *Cato.*

2. To utter in a ſorrowful manner.—

The love-lorn nightingale
Nightly to her ſad ſong *mourneth* well. *Milt.*

MOURNAND, a town of France, in the dep. of the Rhone and Loire; 12 miles SW. of Lyons.

(1.) * MOURNE. *n. ſ.* [*morne*, Fr.] The round end of a ſtaff; the part of a lance to which the ſteel part is fixed, or where it is taken off.—He carried his lances, which though ſtrong to give a lancely blow indeed, yet ſo were they coloured with hooks near the *mourne*, that they prettily repreſented ſheep hooks. *Sidney.*

(2, 3.) Mourne, a lake and river of Ireland, in Donegal. The latter runs into the Foyle at Lifford.

* MOURNER. *n. ſ.* [from *mourn.*] 1. One that mourns; one that grieves.—

The kindred of the queen muſt die at Pomfret.
—Indeed I am no *mourner* for that news,
Becauſe they have been ſtill my adverſaries. *Shak.*

To cure thy woe, ſhe ſhews thy fame;
Leſt the great *mourner* ſhould forget
That all the race whence Orange came,
Made virtue triumph over fate. *Prior.*

From noiſe and riot he devoutly kept,
Sigh'd with the ſick, and with the *mourner* wept. *Harte.*

2. One who follows a funeral in black.—*Mourners* were provided to attend the funeral. *L'Eſtrange.*

He lives to be chief *mourner* for his ſon. *Dryd.*

3. Something uſed at funerals.—

The *mourner* eug hand builderoak were there. *Dryden.*

* MOURNFUL. *adj.* [*mourn* and *full.*] 1. Having the appearance of ſorrow.—

No funeral rites, nor man in *mournful* weeds,
Nor *mournful* bell ſhall ring her burial. *Shak.*

The winds within the quiv'ring branches play'd,
And dancing trees a *mournful* muſic made. *Dryden.*

2. Cauſing ſorrow.—

Upon his tomb,
Shall be engrav'd the ſack of Orleans;
The treach'rous manner of his *mournful* death. *Shakeſp.*

3. Sorrowful; feeling ſorrow.—

The *mournful* fair,
Oft as the rolling years return,
With fragrant wreathes and flowing hair,
Shall viſit her diſtinguiſh'd urn. *Prior.*

4. Betokening ſorrow; expreſſive of grief.—

No *mournful* bell ſhall ring her burial. *Shak.*

On your family's old monument
Hang *mournful* epitaphs.

* MOURNFULLY. *adv.* [from *mournful.*] Sorrowfully; with ſorrow.—

Beat the drum, that it ſpeak *mournfully*. *Shak.*

* MOURNFULNESS. *n. ſ.* [from *mournful.*] 1. Sorrow; grief. 2. Show of grief; appearance of ſorrow.

(1.) * MOURNING. *n. ſ.* [from *mourn.*] 1. Lamentation; ſorrow.—The beginning of ſorrows and great *mournings*. 2 *Eſdr.* xvi. 18. 2. The dreſs of ſorrow.—

The houſes to their tops with black were ſpread,
And ev'n the pavements were with *mourning* hid. *Dryden.*

(2.) Mourning, ancient modes of. Amongſt the ancient Jews, on the death of their relations or intimate friends, mourning was expreſſed by weeping, tearing their clothes, ſmiting their breaſts, or tearing them with their nails, pulling or cutting off their hair and beards, walking ſoftly, *i. e.* barefoot, lying upon the ground, faſting, or eating upon the ground. They kept themſelves cloſe ſhut up in their houſes, covered their faces, and abſtained from all work, even reading the law, and ſaying their uſual prayers. They neither dreſſed themſelves, nor made their beds, nor cut their nails, nor went into the bath, nor ſaluted any body. The time of mourning was generally 7 days; leſs or more according to circumſtances; but 30 days were thought ſufficient upon the ſevereſt occaſions. The different periods of the time of mourning required different degrees of grief, and different tokens of it. The Greeks, on the death of their friends, ſhowed their ſorrow by ſecluding themſelves from all gaiety, entertainments, games, public ſolemnities, wine, and muſic. They ſat in gloomy and ſolitary places, ſtripped themſelves of all external ornaments, put on a coarſe black ſtuff by way of mourning, tore their hair, ſhaved their heads, rolled themſelves in the duſt and mire, ſprinkled aſhes on their heads, ſmote their breaſts with their palms, tore their faces, and frequently cried out with a lamentable voice and drawling tone, reiterating the interjection ε, ε, ε, ε; hence funeral lamentations were called Ελεγοι; whence our word *elegy*. If they appeared in public during the time of mourning, they had veils over their faces and heads. During the funeral proceſſion, certain perſons called εξαρχοι θρηνων marched before, and ſung melancholy ſtrains called ογοφυρμοι ιαλεμοι, Λινοι and Αιλινοι. Theſe vocal mourners ſung thrice during the proceſſion round the pile and round the grave. Flutes were alſo uſed to heighten the ſolemnity. At the funerals of ſoldiers, their fellow ſoldiers, as a teſtimony of their affliction, held their ſhields, their ſpears, and the reſt of their armour, inverted. The tokens of private grief among the Romans were the ſame as thoſe among the Greeks. Black or dark brown were the colours of the mourning habits worn by the men; they were alſo common to the women. The mourning of the emperors at firſt was black. In the time of Auguſtus, the women wore white veils, and the reſt of their dreſs black. From the time of Domitian they wore nothing but white habits, without any ornaments of gold, jewels, or pearls. The men let their hair and beards grow, and wore no wreaths of flowers on their heads while the days of mourning continued. The longeſt time of mourning was ten months: this was Numa's eſtabliſhment, and took in his whole year. For a widow to marry during this time was infamous. Mourning was not uſed for children who died under three years of age. From this age to ten they mourned as many months as the child was years old. A remarkable victory, or other happy event, occaſioned the ſhortening of the time of mourning: The birth of a child, or the attainment of any remarkable honour in the family, certain feaſts in honour of the gods, or the conſecration of a temple, had the ſame effect. After the defeat at Cannæ, the commonwealth decreed that mourning ſhould not be worn for more than 30 days, that the loſs might be forgot as ſoon as poſſible. When public magiſtrates died, or perſons of great note, alſo when any remarkable calamity happened, all public meetings were intermitted, the ſchools of exerciſe, baths, ſhops, temples, and all places of concourſe, were ſhut up, and the whole city put on a face of ſorrow; the ſenators laid aſide the *laticlave*, and the conſuls ſat in a lower ſeat than ordinary. This was the cuſtom of Athens alſo, and was obſerved upon the death of Socrates not long after he had been ſentenced to death by their judges. **Præficæ**, or mourning women, (by the Greeks called θρηνων εξαρχοι), went about the ſtreets: this was cuſtomary among the Jews as well as the Greeks and Romans. Jerem. ix. 17.

(3.) **Mourning, modern modes of.** The modes of mourning are various in various countries; as well as the colours uſed for that end. In Europe, the ordinary colour for mourning is black; in China, it is white; in Turkey, blue or violet; in Egypt, yellow; in Ethiopia, brown. White obtained formerly in Caſtile on the death of their princes. Herrera obſerves, that the laſt time it was uſed was in 1498, at the death of Prince John, Each people aſſign their reaſons for the particular colour of their mourning: white is ſuppoſed to denote purity; yellow, that death is the end of human hopes, in regard that leaves when they fall, and flowers when they fade, become yellow: brown denotes the earth, whither the dead return: black, the privation of life, as being the privation of light: blue expreſſes the happineſs which it is hoped the deceaſed does enjoy; and purple or violet, ſorrow on the one ſide, and hope on the other, as being a mixture of black and blue. But of all the modes of mourning adopted by any people, the moſt ridiculous ſeems to be that of the Chineſe. See **Chinese**, § 12.

* **MOURNINGLY.** *adv.* [from *mourning*.] With the appearance of ſorrowing.—The king ſpoke of him admiringly and *mourningly*. *Shakeſp.*

(1.) **MOURON**, a town of France, in the dep. of Seine and Marne, 3 miles W. of Coulommiers.

(2.) **Mouron**, a mountain of Aſia, in Thibet.

MOURZOOK, or **MOURZOUK**, a city of Africa, the capital of Fezzan. It exhibits a very groteſque medley of ancient ſtone buildings, and mean Arabian cottages of earth and ſand. It is ſurrounded by a high wall, with 3 gates. A caravan travels annually between this city and Meſurata, Gaſhna, and Bornou. It is 262 miles S. of Meſurata, and 710 N. by E. of Caſhna. Lon. 15. 5. E. Lat. 27. 20. N.

(1.) * **MOUSE.** plural *mice*. *n. ſ.* [*mus*, Saxon; *mus*, Lat.] The ſmalleſt of all beaſts; a little animal haunting houſes and corn fields, deſtroyed by cats.—

> The eagle England being in prey,
> To her unguarded neſt the weazel Scot
> Comes ſneaking, and ſo ſucks her princely eggs;
> Playing the *mouſe* in abſence of the cat. *Shak.*
> Where *mice* and rats devour'd poetick bread,
> And with heroick verſe luxuriouſly were fed.
> *Dryden.*

—This ſtructure of hair I have obſerved in the hair of cats, rats, and *mice*. *Denham's Phyſico-Th.*

(2.) **Mouse**, in zoology. See **Mus**, N° III, § 1—3, 17, 26, 30, 36—39, 51—60.

* *To* **Mouse.** *v. n.* [from the noun.] 1. To catch mice.—

> A falcon tow'ring, in his pride of place
> Was by a *mouſing* owl hawk'd and killed. *Shak.*

2. I ſuppoſe it means, in the following paſſage, ſly; inſidious, or predatory; rapacious; intereſted.—A whole aſſembly of *mouſing* ſaints under the maſk of zeal and good nature, lay many kingdoms in blood. *L'Eſtrange.*

(1.) * **Mouse-ear.** *n. ſ.* [*myoſotis*, Lat.] A plant. *Miller.*

(2.) **Mouse-ear**, in botany, See **Hierachium.**

(3.) **Mouse-ear Chickweed.** See **Cerastium.**

(4.) **Mouse-ear Scorpion grass.** See **Myosotis.**

* **Mouse-hole.** *n. ſ.* [*mouſe* and *hole*.] Small hole; a hole at which a mouſe only may run in.—He puts the prophets in a *mouſehole*: the laſt man

ever ſpeaks the beſt reaſon. *Dryden and Lee's Oed.*—He can creep in at a *mouſe-hole*, but he ſoon grows too big ever to get out again. *Stillingfleet.*

* MOUSEHUNT. *n. ſ.* [*mouſe* and *hunt.*] Mouſer; one that hunts mice.—

You have been a *mouſe-hunt* in your time
But I will watch you. *Shak. Romeo and Juliet.*

MOUSELLE, an Eaſt Indian tree, with white tubular flowers, which fall off every day in great plenty. They are of a ſweet agreeable ſmell, and the Gentoos are very fond of wearing them, ſtringing and hanging them about their necks and arms. The fruit is a pale red cherry, of the ſhape and ſize of our white heart-cherry, but the foot-ſtalk is not quite ſo long. This fruit has a ſtone in it, containing a bitter oily kernel. The Indians rub with this oil any part ſtung by a ſcorpion or bitten by a centipede, which it ſoon cures. The crows are very fond of the fruit.

* MOUSER. *n. ſ.* [from *mouſe.*] One that catches mice.—Puſs, a madam, will be a *mouſer* ſtill. *L'Eſtrange.*—When you have fowl in the larder, leave the door open, in pity to the cat, if ſhe be a good *mouſer*. *Swift.*

(1.) * MOUSETAIL. *n. ſ.* [*myoſura.*] An herb.

(2.) MOUSE-TAIL. See MYOSURUS.

* MOUSE-TRAP. *n. ſ.* [*mouſe* and *trap.*] A ſnare or gin in which mice are taken.—Many analogous motions in animals, I have reaſon to conclude, in their principle, are not ſimply mechanical, although a *mouſe-trap*, or Architas's dove, moved mechanically. *Hale.*—Madam's own hand the *mouſetrap* baited. *Prior.*

MOUSS, a river of Scotland, in Lanarkſhire, which runs from E. to W. through the pariſh of Lanark and falls into the Clyde. Its banks are rocky and precipitous, but covered with much natural wood. Fine Jaſpers are found in its bed.

MOUSSY, a river of Indoſtan, which runs acroſs Golconda, and falls into the Kiſtnah, near Palnaud.

MOUSTIER. See MONSTIER, N° 1.

MOUSTIERS, a town of France, in the dep. of the Lower Alps; 12 miles W. of Caſtellane.

MOUSUL, or MOSUL, a large city of Turkey in Aſia, and capital of a Beglerbegate, on the W. bank of the Tigris, according to Mr Ives, in Lat. 36° 30′ N. It is ſurrounded with ſtone walls, but has many of its ſtreets lying waſte. Tavernier ſpeaks of it as a ruined place, with only two blind markets and a ſorry caſtle; yet, he ſays, that it is much frequented by merchants, and that its baſha commands 3000 men. There is a bridge of boats over the Tigris; and the city is a thoroughfare from Perſia to Syria, which makes it a place of trade, which is augmented by a conſtant traffic to Bagdad. The country on this ſide the river is ſandy and barren; but over againſt it is exceedingly fruitful, and yields very good crops of corn and fruit. Mr Ives ſays it was the beſt built city he had ſeen in Turkey; but had nothing in it to attract the notice of an European. It was beſieged for near ſix months by Nadir Shah without ſucceſs. Many aſſaults and breaches were made, but the aſſailants were conſtantly repulſed, and the breaches made in the day-time repaired during the night. The beſieged had unanimouſly reſolved to die rather than to ſubmit. The city was therefore defended with uncommon bravery; even the women and children exerted themſelves with alacrity. The Chriſtians behaved in ſuch a manner as to gain the admiration of the Turks; and ſome of their churches being demoliſhed, they were afterwards repaired at the expence of government. In this city there are many moſques, the largeſt of which is ornamented on the top with green tiles. One of them has a minaret which bends like thoſe of Bagdad. The Turks ſay, that Mahomet ſaluted this minaret as he paſſed; on which it bent its head in reverence to the prophet, and ever after continued in that ſituation! The manufacture of this city is muſlin, which is made very ſtrong and pretty fine. In 1757 this city and the country adjacent were viſited by a dreadful famine, owing to the preceding hard winter, and innumerable multitudes of locuſts, by which the fruits of the earth were deſtroyed. During the famine, the people had eaten dogs, and every kind of animal which is held in abhorrence at any other time, not ſparing even their own children; and the dead bodies lay in the ſtreets for want of people to bury them. The neighbouring mountains afford ſilver mines; and they would yield much quickſilver, if the Turks had either the ſkill or induſtry to work them to advantage. Some lead mines alſo ſupply as much of that metal as furniſhes them with bullets and neceſſary utenſils.

(1.) MOUSEWALD, a pariſh of Scotland, in Dumfries-ſhire, ſuppoſed to have been originally named *Moſs-wold*, or the diſtrict near the moſs of Lochar-Moſs. It is 4½ miles long from N. to S. and 2 broad from E. to SW. or 4½ including the moſs. The ſurface is plain; the air pure, and the ſoil partly light, ſandy and gravelly, and partly marſhy. The chief crops are oats, barley, potatoes and clover. The population in 1791, was 628: increaſe 75 ſince 1755: Number of horſes 142; ſheep, 386; and black cattle 753. The roads are excellent, and bridges numerous, over the Lochar and the rivulets.

(2.) MOUSWALD, a village in the above pariſh, containing 116 inhabitants in 1791.

MOU-TAN, or PEONY SHRUB of China, alſo called *hoa-ouang*, or the *king of flowers*; and *pe-leang-kin*, an *hundred ounces of gold*, in alluſion to the exceſſive price given formerly by ſome of the virtuoſi for certain ſpecies of this plant. The mou-tan claims pre-eminence not only on account of the ſplendour and number of its flowers, and the ſweet odour which they diffuſe around, but alſo of the multitude of leaves which compoſe them, and of the beautiful golden ſpots with which they are interſperſed. This plant is of a ſhrubby nature, and ſhoots forth a number of branches, which form a top almoſt as large as thoſe of the fineſt orange trees that are planted in boxes. Some of the mou-tan have been ſeen 8 or 10 feet in height. The reaſon why few are now raiſed to this ſize is, becauſe their flowers are leſs beautiful, and their branches being too weak, cannot ſuſtain their weight. The root of the mou-tan is long and fibrous, of a pale yellow colour, and covered with a greyiſh or reddiſh rind. Its leaves are deeeply indented, and of a much darker green above than below. Its flowers, which are compoſed of numberleſs petals, blow like a roſe, and are ſupported by a calyx compoſed of 4 leaves. From the bottoms of the petals ariſe ſeveral ſtamina without any order, which bear on their tops ſmall antheræ, of a beautiful golden colour. The fruit bend downwards like thoſe of common peony, burſt when they become dry, and ſhed their ſeeds. There are three ſpecies of mou-tan; common mou-tan, dwarf mou-tan, and the mou-tan tree. The laſt ſpecies ſeems to be loſt; ſome of them were formerly ſeen which were 25 feet in height. Dwarf mou-tan is little eſteemed: a few plants of this kind are only cultivated to preſerve the ſpecies. Common mou-tan, which has always been highly prized by floriſts, is more generally diſperſed. It is raiſed like an eſpalier in form of a fan, buſh, or orange tree. Some of them flower in ſpring, others in ſummer, and ſome in autumn. Theſe different ſpecies muſt each be cultivated in a different manner. The vernal and ſummer mou-tan are thoſe that are cultivated in greateſt number; thoſe of autumn require too ſlaviſh an attention during the great heat of the dog days. The mou-tan of each ſeaſon are divided into ſingle and double; the former are ſubdivided into thoſe of 100 leaves and 1000 leaves; the latter have a large calyx filled with ſtamina, that bear on their tops gold-coloured antheræ. Theſe are the only kind that produce ſeed. The flowers of both appear under the different forms of a baſon, pomegranate, marigold, &c. Some of the mou-tan are red, others violet, purple, yellow, white, black, and blue; and theſe colours, varied by as many ſhades, produce a prodigious number of different kinds. The Chineſe floriſts have the ſecret of changing the colour of their mou-tan, and of giving them whatever tints they pleaſe; but they cannot effect this change but upon thoſe plants which have never produced flowers.

(1.) * **MOUTH.** *n. ſ.* [*muth*, Saxon.] 1. The aperture in the head of any animal at which the food is received. The dove came in; and lo, in her *mouth* was an olive leaf. *Gen.* viii. 11.—There can be no reaſon given, why a viſage ſomewhat longer, or a wider *mouth*, could not have conſiſted with a ſoul. *Locke.* 2. The opening, that at which any thing enters; the entrance; the part of a veſſel by which it is filled and emptied.—He came and lay at the *mouth* of the haven, daring them to fight. *Knolles.*—Set a candle lighted in the bottom of a baſon of water, and turn the *mouth* of a glaſs over the candle, and it will make the water riſe. *Bacon.*—The *mouth* is low and narrow; but, after having entered pretty far in, the grotto opens itſelf in an oval figure. *Addiſon.*—The navigation of the Arabick gulf being more dangerous towards the bottom than the *mouth*, Ptolemy built Berenice at the entry of the gulf. *Arbuthnot.* 3. The inſtrument of ſpeaking.—

> To be entangled with theſe *mouth*-made vows,
> Which break themſelves in ſwearing. *Shak.*
> Either our hiſtory ſhall with full *mouth*
> Speak freely of our acts; or elſe our grave,
> Like Turkiſh mute, ſhall have a tongueleſs *mouth*,
> Not worſhipp'd with a waxen epitaph. *Shak.*

—Call the damſel, and inquire at her *mouth*. *Gen.* xxiv. 57.—Every body's *mouth* will be full on it for the firſt four days, and in four more the ſtory will talk itſelf aſleep. *L'Eſtrange.*—Having frequently in our *mouths* the name eternity, we think we have a poſitive idea of it. *Locke.*—There is a certain ſentence got into every man's *mouth*, that God accepts the will for the deed. *South.* 4. A ſpeaker; a rhetorician; the principal orator. In burleſque language.—Every coffee-houſe has ſome particular ſtateſman belonging to it, who is the *mouth* of the ſtreet where he lives. *Addiſon.* 5. Cry; voice.—

> Coward dogs
> Moſt ſpend their *mouths*, when what they ſeem to threaten
> Runs far before them. *Shak.*
> The fearful dogs divide,
> All ſpend their *mouth* aloft, but none abide. *Dryden.*
> You don't now thunder in the capitol,
> With all the *mouths* of Rome to ſecond thee. *Addiſon.*

6. Diſtortion of the mouth; wry face, in this ſenſe, is ſaid to *make mouths.*—

> Make *mouths* upon me when I turn my back. *Shak.*

—Againſt whom make ye a wide *mouth*, and draw out the tongue? *Iſa.* lvii. 4.—Why they ſhould keep running aſſes at Coleſhill, or how making *mouths* turns to account in Warwickſhire more than any other parts of England, I cannot comprehend. *Addiſon.* 7. *Down in the* Mouth. Dejected; clouded in the countenance.—But, upon bringing the net aſhore, it proved to be only one great ſtone, and a few little fiſhes: upon this diſappointment they were *down in the mouth. L'Eſtr.*

(2.) Mouth, in anatomy, a part of the face, conſiſting of the lips, the gums, the inſides of the cheeks, the palate, the ſalival glands, the os hyoides, the uvula, and the tonſils. See Anatomy, *Index.* Mr Derham obſerves, that the mouth in the ſeveral ſpecies of animals is nicely adapted to the uſes of ſuch a part, and well ſized and ſhaped for the formation of ſpeech, the gathering and receiving of food, the catching of prey, &c. In ſome creatures it is wide and large, in others little and narrow; in ſome it is formed with a deep inciſure into the head, for the better catching and holding of prey, and more eaſy comminution of hard, large, and troubleſome food; and in others with a ſhorter inciſure, for the gathering and holding of herbaceous food. In birds it is neatly ſhaped for piercing the air; hard and horny, to ſupply the want of teeth; hooked, in the rapacious kind, to catch and hold their prey; long and ſlender in thoſe that have their food to grope for in mooriſh places; and broad and long in thoſe that ſearch for it in the mud. Nor is the mouth leſs remarkable in inſects; in ſome it is forcipated, to catch, hold, and tear the prey; in others aculeated, to pierce and wound animals, and ſuck their blood; in others, ſtrongly rigid, with jaws and teeth, to gnaw and ſcrape out their food, carry burdens, perforate the earth, nay the hardeſt wood, and even ſtones themſelves, for houſes and neſts for their young.

(1.) * *To* Mouth. *v. a.* [from the noun.] 1. To utter with a voice affectedly big; to roll in the mouth with tumult.—Speak the ſpeech as I pronounced it, trippingly on the tongue; but if you *mouth* it, I had as lieve the town-crier had ſpoke my lines. *Shak.*—

Twitch'd by the ſleeve he *mouths* it more
and more,
Till with white froth his gown is ſlaver'd o'er.
Dryden.

2. To chew; to eat; to grind in the mouth.—

Corne carried let ſuch as be poore go and
glean,
And after thy cattel to *mouth* it up clean. *Tuſſer.*
Death lines his dead chaps with ſteel,
The ſwords of ſoldiers are his teeth, his fangs;
And now he feaſts, *mouthing* the fleſh of men.
Shak.

3. To ſeize in the mouth.—He keeps them, like an apple, in the corner of his jaw; firſt *mouth'd* to be laſt ſwallow'd. *Shak.*—

He *mouth'd* them, and betwixt his grinders
caught. *Dryden.*

4. To form by the mouth.—In regard the cub comes forth involved in the chorion, a thick membrane obſcuring the formation, and which the dam doth after tear aſunder; the beholder at firſt ſight imputes the enſuing form to the *mouthing* of the dam. *Brown.*

(2.) * *To* **Mouth.** *v. n.* To ſpeak big; to ſpeak in a ſtrong and loud voice; to vociferate.—

Nay, an thou'lt *mouth*,
I'll rant as well as thou. *Shak.*
When Progne's or Thyeſtes' feaſt they write,
And for the *mouthing* actor verſe indite. *Dryden.*
I'll bellow out for Rome, and for my country,
And *mouth* at Cæſar till I ſhake the ſenate.
Addiſon.

MOUTHE, a town of France, in the dep. of the Doubs, 18 miles SE. of Salins, and 13 SW. of Pontarlier.

* **MOUTHED.** *adj.* [from *mouth.*] 1. Furniſhed with a mouth.—

One tragic ſentence if I dare deride,
Which Betterton's grave action dignify'd,
Or well *mouth'd* Booth with emphaſis proclaims.
Pope.

2. In compoſition, foul *mouthed* or contumelious; mealy *mouthed* or baſhful; a hard *mouthed* horſe, or a horſe not obedient to the bit.

* **Mouthfriend.** *n. ſ.* [*mouth* and *friend.*] One who profeſſes friendſhip without intending it.—

May you a better feaſt never behold,
You knot of *mouth-friends;* ſmoke and luke-
warm water
Is your perfection. *Shak.*

* **Mouthful.** *n. ſ.* [*mouth* and *full.*] 1. What the mouth contains at once. 2. Any proverbially ſmall quantity.—A goat going out for a *mouthful* of freſh graſs, charged her kid not to open the door till ſhe came back. *L'Eſtrange.*—

You to your own Aquinum ſhall repair,
To take a *mouthful* of ſweet country air. *Dryd.*

* **Mouth-honour.** *n. ſ.* [*mouth* and *honour.*] Civility outwardly expreſſed without ſincerity.—

Honour, love, obedience, troops of friends,
I muſt not look to have; but in their ſtead,
Curſes not loud but deep, *mouth-honour*, breath.
Shak.

* **MOUTHLESS.** *adj.* [from *mouth.*] Being without a mouth.

Mouths of the Rhone. See **Rhone.**

(1.) **MOUTIER,** a town of France, in the dep. of the Creuſe, 9 miles NW. of Aubuſſon, and 9 SE. of Gueret.

(2.) **Moutier.** See **Monstier,** N° 1.

(3.) **Moutier St Jean,** a town of France in the dep. of Cote d'Or, 3 miles N. of Semur.

(1.) **Moutiers,** a town of France, in the dep. of the Vendee, 10½ miles W. of Luzon.

(2.) **Mottiers les Bains,** a town of France, in the dep. of Allier; 10½ miles E. of Gannat.

MOUVANS, Paul Richard, ſurnamed the *Brave*, a Proteſtant officer, who was born at Caſtellane in Provence, of a reſpectable family and made a conſiderable figure in the civil wars of France, during the 16th century. His brother, who was likewiſe a Proteſtant, having been killed in a popular tumult excited by the Romiſh prieſts at Draguignan, he took up arms to avenge his death; and, having aſſembled 2000 men, committed great devaſtations in Provence. Being purſued by Count Tende, at the head of 6000 men, he took poſt in a convent ſtrongly fortified by nature, reſolved to defend himſelf to the laſt extremity. The Count propoſed an interview, to which Mouvans agreed, on condition that his brother's murderers ſhould be puniſhed, and that thoſe who had taken up arms with him ſhould not be moleſted. Theſe terms being accepted, he diſmiſſed his troops, reſerving only a guard of 50 men. The parliament of Aix had received orders from the court to puniſh him capitally for being concerned in the conſpiracy of Amboiſe. Baron de la Garde made an attempt to apprehend him; but he was repulſed with conſiderable loſs. Mouvans at length retired to Geneva, where he lived for ſome time in tranquillity, nobly rejecting the ſplendid offers made him by the duke of Guiſe if he would join the Catholic party. He returned to France, at the recommencement of the troubles, after the maſſacre of Vaſſy in 1562, and continued to diſtinguiſh himſelf in the Proteſtant armies. His conduct at Siſteron, where he commanded together with Captain Senas, when that city was beſieged by the Count de Sommerive, is particularly admired. After ſuſtaining an aſſault of 7 hours, in which the beſiegers were repulſed with conſiderable loſs, he left the city during the night with his troops and thoſe of the inhabitants who choſe to accompany him. The number of the inhabitants amounted to 4000 men, women, and children. Muſketeers were placed in the front and rear, while the defenceleſs and unarmed occupied the centre. They were often obliged to go out of the way, and to croſs ſteep and rugged mountains, to avoid the ambuſcades laid for them on the road. They ſtopped ſome days in the valleys of Angrone and Pragelas, where they were cordially received and ſupplied with proviſions by the Vaudois. After a march of 21 days, under the greateſt fatigue and famine, they at length arrived at Grenoble. Baron des Adrets ſent them under an eſcort to Lyons, where they remained till the treaty of pacification. In 1568 Mouvans was defeated at Meſignai in Perigord, and loſt his life in the engagement. Upon this occaſion he commanded, together with Peter Gourde, the advanced guard of the Proteſtant army.

MOUY, a town of France, in the dep. of the Oiſe; 6 miles SW. of Clermont, and 12 SE. of Beauvais.

MOUZANBANO, a town of Italy, in the dep. of the Mincio, diſtrict and late duchy of Verona; 14 miles SW. of Verona.

(1.) MOUZON, a river of France, which runs into the Meuſe, at Neufchattel, in the dep. of Voſges.

(2.) MOUZON, a town of France, in the dep. of Ardennes, and ci-devant prov. of Champagne, on the Meuſe. It was often taken and retaken in the wars between France and Germany. It had a rich Benedictine abbey, and has ſome manufactures. It lies 9 miles SE. of Sedan, and 120 NE. of Paris. Lon. 5. 10. E. Lat. 49. 37. N.

(1.) * MOW. *n. ſ.* [*mowe*, Saxon, a heap.] A loft or chamber where hay or corn is laid up. Hay in *mow*, is hay laid up in a houſe; hay in *rick*, is hay heaped together in a field.—

Learn ſkilfullie how
Each grain for to laie by itſelf on a *mow*. *Tuſſ.*

Where'er I gad, I Blouzelind ſhall view,
Woods, dairy, barn, and *mows* our paſſion knew. *Gay.*

—Beans when moiſt give in the *mow*. *Mortimer's Huſbandry.*

(2.) * MOW. *n. ſ.* [probably corrupted from *mouth; moue*, Fr.] Wry mouth; diſtorted face. This word is now out of uſe, but retained in Scotland.—The very abjects came together againſt me unawares, making *mows* at me. *Pſal.* xxxv. 15. *Common Prayer.*—

Apes and monkeys,
'Twixt two ſuch ſhe's, would chatter this way, and
Contemn with *mows* the other. *Shak.*

—Thoſe that would make *mows* at him while my father lived, give twenty ducats a piece for his picture in little. *Shak.*

(3.) MOW, a town of Indoſtan, in Allahabad.

(1.) * *To* MOW. *v. a.* preter. *mowed*, part. *mown.* [*mawan*, Saxon. *Mow* the noun, and *mow* the verb, meaning to put in a *mow*, is pronounced as *mow; mow* to *cut*, as *mo.*] 1. To cut with a ſcythe.—

Of all the ſeed that in my youth was ſowne,
Was nought but brakes and brambles to be *mown*. *Spenſer.*

The care you have
To *mow* down thorns that would annoy our foot,
Is worthy praiſe. *Shak.*

Forth he goes,
Like to a harveſt man, that's taſk'd to *mow*
Or all, or loſe his hire. *Shak.*

—It was the latter growth after the king's *mowings*. *Amos.*—

Whatever
The ſcythe of time *mows* down, devour unſpar'd. *Milton.*

—Beat, roll and *mow* carpet-walks. *Evelyn.* 2. To cut down with ſpeed and violence.—He will *mow* down all before him, and leave his paſſage poll'd. *Shak.*

What valiant foemen, like to autumn's corn,
Have we *mow'd* down? *Shak.*

Thou and I, marching before our troops,
May taſte to them; *mow* 'em out a paſſage,
Begin the noble harveſt of the field. *Dryden.*

Stands o'er the proſtrate wretch, and as he lay,
Mows off his head. *Dryden.*

(2.) * *To* MOW. *v. n.* To gather the harveſt.

Ours is the harveſt where the Indians *mow;*
We plough the deep, and reap what others ſow. *Waller.*

(3.) * *To* MOW. *v. n.* [from the noun.] To put in a mow.

(4.) * *To* MOW. *v. n.* [from tho noun.] To make mouths; to diſtort the face.—Some Smithfield ruffian takes up ſome new *mowing* with the mouth. *Aſcham.*

For every trifle are they ſet upon me;
Sometimes like apes that *mow* and chatter at me,
And after bite me. *Shak.*

* *To* MOWBURN. *v. n.* [*mow* and *burn.*] To ferment and heat in the mow for want of being dry.—Houſe it not green, leaſt it *mowburn.* *Mort. Huſb.*

MOWEE, one of the Sandwich iſlands diſcovered by Captain Cook, is 162 miles in circumference. (See COOK, N° III. § 7.) A low iſthmus divides it into circular peninſulas, of which the E. is double the ſize of the W. The mountains in both riſe to an exceeding great height, and may be ſeen at the diſtance of more than 30 leagues. The N. ſhores, like thoſe of Owyhee, afford no ſoundings, and the country preſents the ſame appearance of verdure and fertility. Near the W. point of the ſmaller peninſula is a ſpacious bay, with a ſandy beach ſhaded with cocoa nut-trees. The country behind has a moſt romantic appearance, the hills riſing almoſt perpendicularly in a great variety of peaked forms; and their ſteep ſides and deep chaſms between them are covered with trees. The tops of theſe hills are entirely bare, and of a reddiſh brown colour. The number of inhabitants is about 65,000. Lon. 204. 4. E. Lat. 20. 50. N.

* MOWER. *n. ſ.* [from *mow;* ſound as *mo-er.*] One who cuts with a ſcythe.—

Set *mowers* a mowing, where meadow is grown. *Tuſſer.*

The ſtrawy Greeks, ripe for his edge,
Fall down before him like the *mower's* ſwath. *Shak.*

All elſe cut off,
As Tarquin did the poppy-heads, or *mowers*
A field of thiſtles. *Ben Jonſon.*

—*Mowers* and reapers, who ſpend the moſt part of the hot ſummer days expoſed to the ſun, have the ſkin of their hands of a darker colour than before. *Boyle.*

MOWILGANGA, a river of Ceylon.

MOWTOBORO, an iſland in the South Sea, 18 miles N. of New Zealand.

(1.) * MOXA. *n. ſ.* An Indian moſs, uſed in the cure of the gout, by burning it on the part aggrieved. *Temple.*

(2.) Moxa, the mugwort of China, is a ſoft lanuginous ſubſtance, prepared in Japan from the young leaves of a ſpecies of artemisia, by beating them together when thoroughly dried, and rubbing them betwixt the hands till only the fine fibres are left. The down on the leaves of mullein, cotton, hemp, &c. do as well as moxa. In the eaſtern countries it is uſed by burning it on the ſkin; a little cone of the moxa is laid upon the part, previouſly moiſtened, and ſet on fire at the top; it burns down with a temperate glowing heat, and produces a dark coloured ſpot, the exulceration of which is promoted by applying a little garlic; the ulcer is left to diſcharge, or is ſoon healed, according to the intention in uſing the moxa. See Artemisia, N° III. § 3.

MOXES, a province of S. America, in Buenos Ayres; E. of the Plata.

(1.) MOY, a town of France, in the dep. of Aiſne, on the Oiſe; 9 miles SE. of St Quintin.

(2.) Moy, a river of Ireland, running into Killaloe Bay, 2 miles W. of Killaloe.

(3.) Moy. [Gael. *Magh*, i. e. a meadow.] a pariſh of Scotland, in Inverneſs-ſhire, united with that of Dalarossie; though there is ſtill a diſtinct church in each, uſed alternately, 9 miles diſtant. Their length from SW. to NE. is 30 miles, and medium breadth 5. The ſurface is bleak, barren, rugged, and mountainous, except a few ſtripes on the Findhorn. The climate is cold, but healthy, and the people long-lived. Not above a 15th part of the ſoil is in cultivation; but that part, in favourable ſeaſons, produces rich crops of oats, barley, rye, and potatoes. The population, in 1791, was 1813; increaſe 120 ſince 1755; the number of horſes was 900; of black cattle, 1800; and ſheep, 12,000. Beſides much natural wood on the banks of the Findhorn, there are ſeveral thriving plantations. But ſervices are ſtill exacted, and huſbandry is not improved. The Gaelic language and dreſs prevail. The Reverend Mr Cruttwell, in his *Univerſal Gazetteer*, mentions "May, a town of Scotland, in Inverneſs-ſhire, 9 m. SE. of Inverneſs;" but the Reverend W. M'Bean, miniſter of Moy and Dalaroſſie expreſsly ſays, "In theſe united pariſhes, there are no *towns*, *villages*, nor manufactures of any kind." *Stat. Acc.* VIII. 506.

(4.) Moy, a lake in the above pariſh, near two miles long, with an iſland in the middle of it, anciently inhabited; and, in 1422, containing a garriſon of 400 men.

(1.) MOYA, two towns of Spain, viz. 1. in New Caſtile, 37 miles E. of Cuenza: 2. in Catalonia, 8 miles NE. of Manreſa.

(2.) Moya, a mountain of S. America, from which, during the great earthquake in Feb. 1797, a flood of water burſt forth, which totally ſwept away the town of Pelile, and the plantation of St Ildephonſo, where 1000 perſons periſhed.

MO-YANG, a town of China, in Kiang-nan.

MOYATTA, a river of Ireland, in Cork.

MOYAUX, a town of France, in the dep. of Calvados; 5 miles NE. of Lizieux.

MOYE, an iſle on the W. coaſt of Jerſey.

MOYENNE-VILLE, a town of France, in the dep. of the Somme; 4 miles SW. of Abbeville.

MOYEN-VIC, a town of France, in the dep. of the Meurthe, with a ſalt ſpring, two miles E. of Vic.

MOYLAND, an ancient town of Germany, in the French empire, and dep. of the Roer, near Cologne; anciently called *Mediolanum*. See Mediolanum, N° 3.

(1.) MOYLE, Walter, a learned Engliſh writer in the 18th century, deſcended of a good family in Cornwall, where he was born in 1672. He was ſent to Oxford, and thence removed to the Temple; where he ſtudied the law, and the conſtitution of the Engliſh government. In 1697 he had a ſhare with Mr Trenchard in writing a pamphlet, intitled, "An Argument ſhowing that a Standing Army is inconſiſtent with a Free Government, and abſolutely deſtructive to the Conſtitution of the Engliſh Monarchy." He tranſlated Xenophon's Diſcourſe upon Improving the State of Athens. He was for ſome time M. P. in which he always acted an honourable part; propoſing meaſures for the improvement and regulation of trade, and the employment of the poor. He afterwards retired to his ſeat at Bake in Cornwall, and died in 1721. In 1726, his works were printed at London, in 2 vols 8vo.

(2.) Moyle, a river of Ireland, which joins the Mourne, 5 miles S. of Strabane.

(3.) * MOYLE. *n. ſ.* A mule; an animal generated between the horſe and the aſs.—Ordinary huſbandmen ſhould quit breeding of horſes, and betake themſelves to *moyles*; a beaſt which will fare hardly, live very long, draw indifferently well, carry great burdens, and hath alſo a pace ſwift and eaſy enough. *Carew.*—

'Twould tempt a *moyle* to fury. *May.*

MOYNE, a river of Ireland, in Galway, which joins the Clare, ſix miles S. of Tuam.

MOYOWLA, a river of Ireland, which runs into Lough Neagh, two miles E. of Magherafelt.

MOYRA. See Moira.

MOYRANS, a town of France, in the dep. of the Jura, ſix miles NW. of St Claude.

MOYRAZES, a town of France, in the dep. of the Aveiron, nine miles W. of Rhodez.

MOYSE, Henry, a Scottiſh gentleman, born in 1573, who was firſt page to King James VI. and afterwards a gentleman of his privy chamber. He wrote a diary of what paſſed at court, an edition of which was publiſhed in 1753. He died in 1630, aged 57.

MOZAISK, a town of Ruſſia, in Muſcovy, 56 miles W. of Moſcow.

(1.) MOZAMBICO, or } See Mosambique,
(1.) MOZAMBIQUE, } N° 1—4.

(2.) Mosambique, Straits of, a part of the Indian Ocean, which divides Madagaſcar from the continent.

MOZART, Wolfgang, a late celebrated German muſician, born at Saltzburg in 1756. He was taught muſic by his father, who was maſter of the chapel at Saltzburg, and made ſuch rapid progreſs, that while yet a child he played before the emperor. In 1763 he went with his father to Paris, and thence to London, where he performed before his majeſty, and publiſhed ſix ſonatas for the harpſichord. In 1766 they returned to Saltzburg, and in 1769 young Mozart went to Italy, where the Pope conferred on him the order of the Golden Spur, and the Philo-Harmonic Society of Bologna admitted him a member. In 1781 he ſettled at Vienna, where he compoſed his principal works, and was much honoured by the emperor Joſeph II. He died in 1791.

MOZDOZ, a town of Ruſſia in Caucaſus.

MOZE, a town of France, in the dep. of the Maine and Loire, 15 miles WSW. of Angers.

MOZUN, a town of France, in the dep. of Puy de Dome, 4½ miles ESE. of Billom.

MOZYR, a town of Lithuania, in Minſk.

MOZANNICA, a town of Italy, in the dep. of Olona, diſtrict and late duchy of Milan, 12 m. NNE. of Lodi, and 22 E. of Milan.

M. P. a contraction very generally uſed in addreſſing letters to Members of Parliament.

MRZEC, a river of Poland, which joins the Niemen, 4 miles NW. of Grodno.

MSAI, } Names, or rather *ſymbols*, of 2 genera
MSI, } of earths and ſtones, in Dr Thomſon's new arrangement of Minerals. See MINERALOGY, *Part* II. *Chap.* IV. *Claſs* I. *Ord.* I. *Gen.* XV. and XX.

MISTA, a river of Ruſſia in Novogorod.

MSTOW, a town of Poland, in Cracow.

MTZENSK, a town of Ruſſia, in Orel.

MUASSEM, a town of Arabia, in Yemen.

MUCATO, a river of Naples, in Calabria.

(1.) * MUCH. *adj.* [*mycker*, Swed. *mucho*, Span.] 1. Large in quantity; long in time: oppoſed to *little*.—Thou ſhalt carry *much* ſeed out. *Deut.* xxviii. 38.—I am well ſerved to take ſo *much* pains for one reſolved to make away with himſelf. *L'Eſtrange*.—You were preſſed for the ſea-ſervice, and got off with *much* ado. *Swift*. 2. Many in number: oppoſed to *few*.—

Let us know
If 'twill tie up thy diſcontented ſword,
And carry back to Sicily *much* tall youth,
That elſe muſt periſh here. *Shak.*

(2.) * MUCH. *adv.* 1. In a great degree; by far: before ſome word of compariſon.—Iſaac, thou art *much* mightier than we. *Gen.* xxvi. 16.—Excellent ſpeech becometh not a fool, *much* leſs do lying lips a prince. *Prov.* xvii. 7.—We have had fathers of our fleſh which corrected us, and we gave them reverence: ſhall we not *much* rather be in ſubjection unto the father of ſpirits, and live. *Heb.* xii. 9.—If they eſcaped not who refuſed him that ſpoke on earth, *much* more ſhall not we eſcape, if we turn away from him that ſpeaketh from heaven. *Heb.* xii. 25.

Full of doubt I ſtand,
Whether I ſhould repent me now of ſin
By me done or occaſioned, or rejoice
Much more, that *much* more good thereof ſhall ſpring. *Milton.*

Patron or interceſſor none appear'd,
Much leſs that durſt upon his own head draw
The deadly forfeiture. *Milton.*

2. To a certain degree.—The more he charged them, ſo *much* the more a great deal they publiſhed it. *Mark* vii. 36.—

There is, ſaid Michael, if thou well obſerve,
The rule of too *much*. *Milton.*

3. To a great degree.—

Henceforth I fly not death, nor would prolong
Life *much*, bent rather how I may be quit
Faireſt and eaſieſt of this cumbrous charge. *Milton.*

So ſpake, ſo wiſh'd *much* humbled Eve, but fate
Subſcrib'd not. *Milton.*

Somewhat aw'd I ſhook with holy fear,
Yet not ſo *much* but that I noted well
Who did the moſt in ſong and dance excel. *Dryd.*
To thee thy *much* afflicted mother flies. *Dryd.*
Your *much* lov'd fleet ſhall ſoon
Beſiege the petty monarchs of the land. *Dryden.*

—If his rules of reaſon be not better than his rules for health, he is not like to be *much* followed. *Baker.*—

Oh *much* experienc'd man! *Pope.*
Sad from my natal hour my days have ran,
A *much* afflicted, much enduring man. *Pope.*

4. Often, or long.

You pine, you languiſh, love to be alone,
Think *much*, ſpeak little. *Dryden.*
Homer ſhall laſt, like Alexander, long,
As *much* recorded, and as often ſung. *Granv.*

5. Nearly.—All left the world *much* as they found it, ever unquiet, ſubject to changes and revolutions. *Temple.*

(3.) * MUCH. *n. ſ.* 1. A great deal; multitude in number; abundance in quantity: oppoſed to *a little*.—They gathered againſt Moſes and Aaron, and ſaid, Ye take too *much* upon you. *Numb.* xvi. 3.

Nor grudge I thee the *much* the Grecians give,
Nor murm'ring take the little I receive. *Dryd.*

—They have *much* of the poetry of Mæcenas, but little of his liberality. *Dryden.*—

The fate of love is ſuch,
That ſtill it ſees too little or too *much*. *Dryden.*
Much ſuff'ring heroes next their honours claim.
Pope's Temple of Fame.

2. More than enough; a heavy ſervice or burthen.

Thou think'ſt it *much* to tread the ooze
Of the ſalt deep. *Shak. Tempeſt.*
He thought not *much* to clothe his enemies.
Milton.
This gracious act the ladies all approve,
Who thought it *much* a man ſhould die for love.
Dryden.

3. Any aſſignable quantity or degree.—The waters covered the chariots and horſemen; there remained not ſo *much* as one. *Exod.* xiv. 28.—We will cut wood out of Lebanon as *much* as thou ſhalt need. *2 Chron.* ii. 16.—The matter of the univerſe was created before the flood; and if any more was created, then there muſt be as *much* annihilated to make room for it. *Burnet's Theory.*—Who is there of whom we can with any rational aſſurance, or perhaps ſo *much* as likelihood, affirm, here is a man whoſe nature is renewed, whoſe heart is changed? *South.* 4. An uncommon thing; ſomething ſtrange.—It was *much* that one that was ſo great a lover of peace ſhould be happy in war. *Bacon's Henry* VII.—It is *much*, if men were from eternity, that they ſhould not find out the way of writing all that long duration which had paſt before that time. *Tillotſon.* 5. *To make* MUCH of, to treat with regard; to fondle; to pamper.—Though he knew his diſcourſe was to entertain him from a more ſtraight parley, yet he durſt not but kiſs his rod, and gladly make *much* of that en-

tertainment which ſhe allotted unto him. *Sidney.*—The king underſtanding of their adventure, ſuddenly falls to take a pride in making *much* of them. *Sidney.*—

When thou cameſt firſt,
Thou ſtroaked'ſt, and mad'ſt *much* of me; and
Would'ſt give me
Water with berries in't. *Shak. Tempeſt.*

(4.) * Much is often uſed in a kind of compoſition with participles both active and paſſive: when it is joined with a paſſive, as *much loved*, it ſeems, to be an adverb; when it is joined with an active, as *much enduring*, it may be properly conſidered as a noun.

(5.) * Much at one. Nearly of equal value; of equal influence.—

Then prayers are vain as curſes, *much at one*
In a ſlave's mouth, againſt a monarch's pow'r.
Dryden.

MUCHAWIEC, a river of Poland, which runs into the Bug at Brzeſc.

* MUCHEL. *adj.* for *muckle* or *mickle*. [*mycel*, Saxon.] Much.—

He had in arms abroad won *muchel* fame,
And fill'd far lands with glory of his might,
Fairy Queen.

MUCHELN, a town of Upper Saxony, in Thuringia. In 1621, it was burnt by the Imperialiſts under Count Tilly. It is 6 miles N. of Frieburg.

MUCHIETO, a town of Corſica, 1 mile N. of Cervione.

MUCHODER, a town of Arabia, in Yemen.

MUCHUNDRUM, a town of Indoſtan, in the Myſore; 12 miles E. of Bangalore.

* Muchwhat. *adv.* [*much* and *what*.] Nearly.—The motion being conveyed from the brain of one man to the fancy of another, it is there received; and the ſame kind of ſtrings being moved, and *muchwhat* after the ſame manner as in the firſt imaginant. *Glanville's Scepſis.*—The bigneſs of her body and bill, as likewiſe the form of them, is *muchwhat* as follows. *More's Antidote againſt Atheiſm.*—If we will diſbelieve every thing, becauſe we cannot know all things, we ſhall do *muchwhat* as wiſely as he who would not uſe his legs becauſe he had no wings to fly. *Locke.*—Unleſs he can prove cælibatum a man or woman, this Latin will be *muchwhat* the ſame with a ſoleciſm. *Atterbury.*

* MUCID. *adj.* [*mucidus*, Lat. *mucre*, French.] Slimy; muſty.

MUCIDAN, a town of France, in the dep. of Dordogne; 18 miles SW. of Periguex.

* MUCIDNESS. *n. ſ.* [from *mucid*.] Slimineſs; muſtineſs. *Ainſworth.*

(1.) * MUCILAGE. *n. ſ.* [*mucilage*, Fr.] A ſlimy or viſcous maſs; a body with moiſture ſufficient to hold it together.—Diſſolution of gum tragacanth, and oil of ſweet almonds, do commingle, the oil remaining on the top till they be ſtirred, and make the *mucilage* ſomewhat more liquid. *Bacon.*—Your alaternus ſeed move with a broom, that the ſeeds clog not together, unleſs you will ſeparate it from the *mucilage*, for then you muſt a little bruiſe it wet. *Evelyn.*—Both the ingredients improve one another; for the *mucilage* adds to the lubricity of the oil, and the oil preſerves the *mucilage* from inſpiſſation. *Ray on the Creation.*

(2.) Mucilage, in anatomy, is the liquor which principally ſerves to moiſten the ligaments and cartilages of the articulations, and is ſupplied by the mucilaginous glands.

(3.) Mucilage, in pharmacy, is in general any viſcid or glutinous liquor.

(1.) * MUCILAGINOUS. *adj.* [*mucilagineux*, French; from *mucilage*.] Slimy; viſcous; ſoft with ſome degree of tenacity.—There is a twofold liquor prepared for the inunction and lubrification of the heads or ends of the bones; an oily one, furniſhed by the marrow; and a *mucilaginous*, ſupplied by certain glandules ſeated in the articulations. *Ray on the Creation.*—There is a ſort of magnetiſm in all, not *mucilaginous*, but reſinous gums, even in common roſin. *Grew's Coſmol.*

(2.) * Mucilaginous glands.—*Mucilaginous glands* are of two ſorts: ſome are ſmall, and in a manner milliary glands; the other ſort are conglomerated, or many glandules collected and planted one upon another. *Quincy.*

* MUCILAGINOUSNESS. *n. ſ.* [from *mucilaginous*.] Slimineſs; viſcoſity.

MUCIUR, a town of Turkey, in Caramania.

(1.) * MUCK. *n. ſ.* [*meox*, Sax. *myer*, Iſlandick.] 1. Dung for manure of grounds.—

Hale out thy *mucke*, and plow out thy ground.
Tuſſer.

—It is uſual to help the ground with *muck*, and likewiſe to recomfort with *muck* put to the roots; but to water it with *muck* water, which is like to be more forcible, is not practiſed. *Bacon's Nat. Hiſt.*—The ſwine may ſee the pearl, which yet he values but with the ordinary *muck*. *Glanville.*—

With fat'ning *muck*
Beſmear the roots. *Phillips.*

Morning inſects, that in *muck* begun,
Shine, buzz, and fly-blow in the ſetting ſun.
Pope.

2. Any thing low, mean, and filthy.—

Reward of worldly *muck* doth foully blend,
And low abaſe the high heroick ſpirit. *F. Queen.*

3. *To run a* Muck, ſignifies, I know not from what derivation, to run madly and attack all that we meet.—

Frontleſs and ſatire-proof he ſcow'rs the
ſtreets,
And *runs an* Indian *muck* at all he meets.
Dryden.

Satire's my weapon, but I'm too diſcreet
To *run a muck*, and tilt at all I meet. *Pope.*

(2.) Muck, (§ 1, *def.* 3.) or running a muck, is a practice that has prevailed time immemorial in Batavia. To run a muck in the original ſenſe of the word, is to get intoxicated with opium, and then ruſh into the ſtreet with a drawn weapon, and kill any one that comes in the way, till the party is himſelf either killed or taken priſoner. If the officer takes one of theſe *amocks* or mohawks (as they have been called by an eaſy corruption) alive, he has a conſiderable reward; and the unhappy wretches are always broken alive on the wheel: but ſuch is the fury of their deſperation, that three out of four are neceſſarily deſtroyed in attempting to ſecure them.

(3.) Muck, an iſland on the E. coaſt of Ireland.

* *To* Muck. *v. a.* [from the noun.] To manure with muck; to dung.—

Thy garden plot lately well trenched and *muckt*
Would now be twifallow'd. *Tuſſer.*

(1.) MUCKAIRN, a pariſh of Scotland, in Argyleſhire, united with that of ARDCHATTAN. The ſoil is fertile, and produces good crops of oats, barley, and potatoes. Ben-Cruachan, one of the higheſt mountains of Scotland, is in theſe pariſhes. See CRUACHAN. It is about 20 miles in circumference, and affords excellent paſture for about 30,000 ſheep, 2800 black cattle, and 450 horſes. Every cutting of its wood is worth about L. 16,000. In theſe pariſhes there are many relics of Druidiſm, and indubitable evidences of *Uſnath* and others of OSSIAN's heroes having once reſided in them. Beregonium, too, the ancient capital of Caledonia, was ſituated in this diſtrict. See BEREGONIUM.

(2.) MUCKAIRN, a village in the above pariſh, 14 miles N. of Inverary.

MUCKARSEY, LINN OF. See MAY, N° 7.

MUCKART, [Gael. from *Muc*, a wild boar, and *ard*, a height,] a pariſh of Perthſhire, of a triangular form, 5 miles long from E. to W. and from 2 to 3 broad; comprehending 4500 acres, of which 3000 are arable, and 1500 hilly, fit for paſture. The climate is rainy but healthful; the ſoil chiefly light gravel, producing good crops of oats, barley, peas, and potatoes. The population, in 1793, was 526; decreaſe 9, ſince 1755. Number of horſes 140, ſheep 520, and black cattle 620. Both coals and lime are found in the pariſh; and it has ſeveral natural curioſities, particularly the *Rumbling Bridge*, *Caldron Linn*, and *Deil's Mill* on the Dovan. See DEVON, N° 1. and DOVAN.

MUCKEARN. See ARDCHATTAN, and MUCKAIRN.

MUCKENBERG, a town of Saxony, in Meiſſen.

* MUCKENDER. *n. ſ.* [*mouchoir*, French; *mocadero*, Spaniſh; *muccinium*, low Latin.] A handkerchief.—

For thy dull fancy a *muckender* is fit,
To wipe the ſlabberings of thy ſnotty wit. *Dorſet.*

* *To* MUCKER. *v. n.* [from *muck*.] To ſcramble for money; to hoard up; to get or ſave meanly: a word uſed by *Chaucer*, and ſtill retained in converſation.

* MUCKERER. *n. ſ.* [from *mucker*.] One that muckers.

* MUCKHILL. *n. ſ.* [*muck* and *hill*.] A dunghill.—Old Euclio in Plautus, as he went from home, ſeeing a crow ſcrat upon a *muck-hill*, returned in all haſte, taking it for an ill ſign his money was digged up. *Burton.*

* MUCKINESS. *n. ſ.* [from *mucky*.] Naſtineſs; filth.

MUCKISH, mountains of Ireland, in Donegal; 26 miles N. of Donegal.

* MUCKLE. *adj.* [*mycel*, Saxon.] Much.

MUCKRIS, a cape of Ireland, in Donegal.

* MUCKSWEAT. *n. ſ.* [*muck* and *ſweat*: in this low word, *muck* ſignifies wet, moiſt.] Profuſe ſweat.

* MUCKWORM. *n. ſ.* [*muck* and *worm*.] 1. A worm that lives in dung. 2. A miſer; a curmudgeon.—

Worms ſuit all conditions;
Miſers are *muck-worms*, ſilk-worms beaus,
And death-watches phyſicians. *Swift.*

* MUCKY. *n. ſ.* [from *muck*.] Naſty; filthy.—
Mucky filth his branching arms annoys.
Fairy Queen.

MUCOR, in botany, a genus of the order of fungi, belonging to the cryptogamia claſs of plants. This fungus has veſicular heads ſupported by foot-ſtalks. There are 12 ſpecies; the moſt remarkable are theſe:

1. MUCOR CRUSTACEUS, the fingered mould, is frequent upon corrupted food of various kinds. It is of a white aqueous colour; the ſtalks ſingle, each ſupporting at the top four or five necklace-like radii, diverging from the ſame point or centre.

2. MUCOR GLAUCUS, the grey cluſter-headed mould, is found on rotten apples, melons, and other fruits; alſo upon decayed wood, and the ſtalks of wheat. Theſe are of a pellucid grey colour; the ſtalks generally ſingle, ſupporting a ſpherical ball, which, when magnified, appears to be compounded of numerous fine, moniliform, necklace-like radii.

3. MUCOR LICHENOIDES, the little black pin-headed mucor. This ſpecies grows in groups near to each other, in chaſms of the barks of old trees, and upon old park-pales. The ſtalks are black, about two lines in height; bearing each a ſingle head, ſometimes a double or treble one, of the ſize of muſtard or poppy ſeeds, of a roundiſh figure at firſt, but when burſt, often flattiſh or truncated, and of a black colour. The internal powdered down is black, with a tinge of green.

4. MUCOR MUCEDO, the common grey mould, grows on bread, fruits, plants, and other ſubſtances in a putrid ſtate. It grows in cluſters; the ſtalks a quarter of an inch high, pellucid, hollow, and cylindrical; ſupporting each a ſingle globular head, at firſt tranſparent, afterwards dark grey; which burſts with elaſtic force, and ejects ſmall round ſeeds diſcoverable by the microſcope.

5. MUCOR SEPTICUS, the yellow frothy mucor, is found on the leaves of plants, ſuch as ivy and beech, &c. ſometimes upon dry ſticks, and frequently upon the tin or bark in hot-houſes. It is of no certain ſize or figure, but of a fine yellow colour, and a ſubſtance reſembling at firſt cream beat up into froth. In 24 hours it acquires a thin filmy coat, becomes dry, and full of a ſooty powder adhering to downy threads. The ſeeds under the microſcope appear to be globular. Haller ranks it under a new genus, which he terms *fuligo*; the characters of which are, that the plants contained under it are ſoft, and like butter at firſt, but ſoon change into a black ſooty powder.

6. MUCOR SPHÆROCEPHALUS, the grey round-headed mucor, growing upon rotten wood, and ſometimes upon decayed plants and moſſes. The ſtalks are generally black, about a line in height; bearing each at the top a ſpherical ball about the ſize of a pin's head; its coat or rind is covered with a grey powder, and contains within a black or fuſcous ſpongy down. The coat burſts into a ragged, irregular margin.

(1.) * MUCOUS. *adj.* [*mucoſus*, Latin.] Slimy; viſcous.—The ſalamander being cold in the fourth, and moiſt in the third degree, and having alſo a *mucous* humidity above and under the ſkin, may a while endure the flame. *Brown.*—About theſe the nerves and other veſſels make a fine web, covered over with a *mucous* ſubſtance, to moiſten theſe papillæ pyramidales. *Cheyne.*

(2.) Mucous Glands. See Anatomy, *Index*.

* MUCOUSNESS. *n. ſ.* [from *mucous.*] Slime; viſcoſity.

* MUCRO. *n. ſ.* [Latin.] A point.—The *mucro*, or point of the heart inclineth unto the left, by this poſition it giving way unto the aſcenſion of the midriff. *Brown.*

* MUCRONATED. *adj.* [*mucro*, Latin.] Narrowed to a ſharp point.—Gems are here ſhot into cubes conſiſting of ſix ſides, and *mucronated* or terminating in a point. *Woodward.*

* MUCULENT. *adj.* [*mucus*, Latin.] Viſcous; ſlimy. *Dict.*

MUCULLAGH, ſmall iſlets or rocks of the Atlantic, in Tralee Bay, on the W. coaſt of Ireland.

(1.) * MUCUS. *n. ſ.* [Latin.] It is more properly uſed for that which flows from the papillary proceſſes through the os crebriforme into the noſtrils; but it is alſo uſed for any ſlimy liquor or moiſture, as that which daubs over and guards the bowels and all the chief paſſages in the body; and it is ſeparated by the mucilaginous glands. *Quincy.*—In the action of chewing, the *mucus* mixeth with the aliment: the *mucus* is an humour different from the ſpittle, and the great quantity of air which it contains helps to diſſolve the aliment. *Arbuthnot on Aliments.*

(2.) Mucus, a mucilaginous liquor ſecreted by certain glands, and ſerving to lubricate many of the internal cavities of the body. In its natural ſtate it is generally limpid and colourleſs; but, from certain cauſes, will often aſſume a thick conſiſtence and whitiſh colour like pus. As it is ſometimes of very great importance in medicine to diſtinguiſh theſe two fluids from each other, this was lately propoſed as the ſubject of a prize diſputation by the Æſculapian Society of Edinburgh. The prize was gained by Mr Charles Darwin, ſtudent of medicine from Litchfield. The concluſions drawn from his experiments were, 1. Pus and mucus are both ſoluble in the vitriolic acid, though in very different proportions, pus being by far leaſt ſoluble. 2. The addition of water to either of theſe compounds decompoſes it. The mucus thus ſeparated either ſwims in the mixture or forms large flocculi in it; whereas the pus falls to the bottom, and forms, on agitation, an uniform turbid mixture. 3. Pus is diffuſible through diluted vitriolic acid, though mucus is not. The ſame alſo occurs with water, or with a ſolution of ſea-ſalt. 4. Nitrous acid diſſolves both pus and mucus. Water added to the ſolution of pus produces a precipitate, and the fluid above becomes clear and green, while water and the ſolution of mucus form a turbid dirty-coloured fluid. 5. Alkaline lixivium diſſolves, though ſometimes with difficulty, mucus, and generally pus. 6. Water precipitates pus from ſuch a mixture, but does not mucus. 7. Where alkaline lixivium does not diſſolve pus, it ſtill diſtinguiſhes it from mucus, as it then prevents its diffuſion through water. 8. Coagulable lymph is neither ſoluble in concentrated nor diluted vitriolic acid. 9. Water produces no change on a ſolution of ſerum in alkaline lixivium, until after long ſtanding, and then only a very ſlight ſediment appears. 10. Corroſive ſublimate coagulates mucus, but does not pus. From the above experiments it appears, that ſtrong vitriolic acid and water, diluted vitriolic acid, and cauſtic alkaline lixivium and water, will ſerve to diſtinguiſh pus from mucus; that the vitriolic acid can ſeparate it from coagulable lymph, and alkaline lixivium from ſerum. Hence, when a perſon has any expectorated matter, the decompoſition of which he wiſhes to aſcertain, let him diſſolve it in vitriolic acid, and in cauſtic alkaline lixivium; and let him add pure water to both ſolutions. If there be a fair precipitation in each, he may be aſſured that ſome pus is preſent. But if there be a precipitation in neither, it is certain that the mixture is entirely mucus. If the matter cannot be made to diſſolve in alkaline lixivium by time and trituration, we have alſo reaſon to believe that it is pus.

(1.) * MUD. *n. ſ.* [*modder*, Dutch.] The ſlime and uliginous matter at the bottom of ſtill water.

The pureſt ſpring is not ſo free from *mud*,
As I am clear from treaſon. *Shak. Henry VI.*

—Water in *mud* doth putrefy, as not able to preſerve itſelf. *Bacon.*—The channel was dried up, and the fiſh left dead and ſticking in the *mud*. *L'Eſtr.*—Vacant interſtices will be again filled up by particles carried on by the ſucceeding fluid, as a bank by the *mud* of the current. *Arbuthnot.*—

A fountain in a darkſome wood,
Nor ſtain'd with falling leaves nor riſing *mud*.
Addiſon.

(2.) Mud Iguana. See Muræna, N° 3.

(3.) Mud Island, a ſmall fortified iſland of the United States, in the Delaware. It was taken by the Britiſh in 1777. See America, § 28.

* *To* Mud. *v. a.* [from the noun.] 1. To bury in the ſlime or mud.—

I wiſh
Myſelf were *mudded* in that oozy bed,
Where my ſon lies. *Shak. Tempeſt.*

2. To make turbid; to pollute with dirt; to foul by ſtirring up the ſediment.—I ſhall not ſtir in the waters which have been already *mudded* by ſo many contentious inquiries. *Glanville.*

MUDANIA, or Montagna, a town of Aſiatic Turkey, in Natolia, on a gulf in the SE. part of the Sea of Marmora. The inhabitants are chiefly Greeks and Jews, with ſome Turks. The commerce is conſiderable in grain, ſilk, ſaltpetre, wine, fruits, and Manufactures. The Abp. of Burſa has a palace in it. It is 15 miles NNW. of Burſa. Lon. 46. 40. E. of Ferro. Lat. 40. 15. N. *(Cruttwell.)* It ſeems to be the ſame with Montagniac.

* MUDDILY. *adv.* [from *muddy.*] Turbidly; with foul mixture.—Lucilius wrote not only looſely and *muddily*, with little art, and much leſs care, but alſo in a time which was not yet ſufficiently purged from barbariſm. *Dryden.*

* MUDDINESS. *n. ſ.* [from *muddy.*] Turbidneſs; foulneſs cauſed by mud, dregs, or ſediment.—Our next ſtage brought us to the mouth of the Tiber: the ſeaſon of the year, the *muddineſs* of the ſtream, with the many green trees hanging over it, put me in mind of the delightful image

that Virgil has given, when Æneas took the firſt view of it. *Addiſon on Italy.*—Turn the bottle upſide down; by this means you will not loſe one drop, and the froth will conceal the *muddineſs. Swift.*

* *To* MUDDLE. *v. a.* [from *mud.*] 1. To make turbid; to foul; to make muddy.—The neighbourhood told him he did ill to *muddle* the water and ſpoil the drink. *L'Eſtrange.*—

In a cottage, or a court,
Drink fine champagne, or *muddl'd* port. *Prior.*

2. To make half drunk; to cloud or ſtupify,—I was for five years often drunk, always *muddled;* they carried me from tavern to tavern. *Arbuthnot.* —Epicurus ſeems to have had his brains ſo *muddled* and confounded, that he ſcarce ever kept in the right way, though the main maxim of his philoſophy was to truſt to his ſenſes, and follow his noſe. *Bentley.*

* MUDDY. *adj.* [from *mud.*] 1. Turbid; foul with mud.—

A woman mov'd is like a fountain troubled,
Muddy, ill-ſeeming, thick, bereft of beauty. *Shak.*
Her garments, heavy with their drink,
Pull'd the poor wretch from her melodious lay
To *muddy* death. *Shak.*

—Empty it in the *muddy* ditch cloſe by the Thames. *Shak.*—

Who can a pure and cryſtal current bring
From ſuch a *muddy* and polluted ſpring? *Sandys.*
I ſtrove in vain the infected blood to cure,
Streams will run *muddy* where the ſpring's impure. *Roſcommon.*
Till by the fury of the ſtorm full blown,
The *muddy* bottom o'er the clouds is thrown. *Dryden.*

—Out of the true fountains of ſcience, painters and ſtatuaries are bound to draw, without amuſing themſelves with dipping in ſtreams which are often *muddy*, at leaſt troubled; I mean the manner of their maſters after whom they creep. *Dryd.* 2. Impure; dark; groſs.—

Such harmony is in immortal ſounds;
But whilſt this *muddy* veſture of decay
Doth groſsly cloſe us in, we cannot hear it. *Shak.*

—If you chuſe, for the compoſition of ſuch ointment, ſuch ingredients as do make the ſpirits a little more groſs or *muddy*, thereby the imagination will fix the better. *Bacon.* 3. Soiled with mud.—

His paſſengers
Expos'd in *muddy* weeds upon the miry ſhore. *Dryden.*

4. Dark; not bright.—

The black
A more inferior ſtation ſeeks,
Leaving the fiery red behind,
And mingles in her *muddy* cheeks. *Swift.*

5. Cloudy in mind; dull.—

Do'ſt think I am ſo *muddy*, ſo unſettled,
To appoint myſelf in this vexation. *Shak.*
Yet I,
A dull and *muddy* mettled raſcal, peak,
Like John-a-dreams, unpregnant in my cauſe,
And can ſay nothing. *Shak.*

* *To* MUDDY. *v. a.* [from *mud.*] To make muddy; to cloud; to diſturb.—

The people *muddied*
Thick and unwholeſome in their thoughts and whiſpers. *Shak.*

—Exceſs, either with an apoplexy, knocks a man on the head; or with a fever, like fire in a ſtrong-water ſhop, burns him down to the ground; or if it flames not out, charks him to a coal; *muddies* the beſt wit, and makes it only to flutter and froth high. *Grew.*

MUDECH, or MUDAU, a town of Germany, in the late biſhopric of Mentz, 10 m. S. of Miltenberg.

MUDEN, a town of Perſia, in Segeſtan.

MUDERNI, a town of Turkey, in Natolia.

MUDGE, John, M. D. a late eminent Engliſh phyſician, and an excellent mechanical genius, was the ſon of a clergyman at Plymouth. He wrote a treatiſe on the *Catarrhous Cough;* invented the INHALER for the cure of that diſeaſe, and improved the reflecting teleſcope. He died in 1793.

MUDGE'S INHALER. See INHALER, MEDICINE, *Index*, and *Plate* CXCIII.

MUDIPILLI. See MOOTAPILLY.

MUDO, Hernandez, an eminent Spaniſh painter, under Philip II. He was a diſciple of Titian; and made ſuch progreſs, that, though born deaf and dumb, he was employed by Philip many years in the palace of the Eſcurials, where his performances procured him great honours and emoluments.

* MUDSUCKER. *n. ſ.* [*mud* and *ſuck.*] A ſea-fowl.—In *mudſuckers*, two of the toes are ſomewhat joined, that they may not eaſily ſink. *Derh.*

MUDT, a river of Germany, in the circle of the Lower Rhine, which runs into the Maine, near Miltenberg.

* MUDWALL. *n. ſ.* [*mud* and *wall.*] 1. A wall built without mortar, by throwing up mud and ſuffering it to dry.—If conſcience contract ruſt or ſoil, a man may as well expect to ſee his face in a *mudwall*, as that ſuch a conſcience ſhould give him a true report of his condition. *South.* 2. [*apiaſter.*] A bird ſo called. *Ainſworth.*

* MUDWALLED. *adj.* [*mud* and *wall.*] Having a mudwall.—

As folks from *mudwall'd* tenement
Bring landlords pepper-corn for rent;
Preſent a turkey, or a hen,
To thoſe might better ſpare them ten. *Prior.*

* *To* MUE. *v. a.* [*muer*, French.] To moult; to change feathers.

MUEHR, a river of Germany, which riſes in Saltzburg, runs through Stiria, and joins the Drave in Hungary.

MUEHRAU, a town of Germany, in Stiria, on the Muehr, which it divides in two; with a fort 116 miles SW. of Vienna. It was taken by the French in March 1797.

MUEL, a town of Spain, in Arragon.

* MUFF. *n. ſ.* [*muff*, Swediſh.] A ſoft cover for the hands in Winter.—

Feel but the difference ſoft and rough,
This is a gantlet, that a *muff*. *Cleaveland.*
What! no more favours, not a ribbon more,
Not fan, not *muff*? *Suckling.*
The lady of the ſpotted *muff* began. *Dryden.*

—A child that ſtands in the dark upon his mother's *muff*, ſays he ſtands upon ſomething, he knows not what. *Locke.*

MUFFLE. *n.ſ.* in chemiſtry, a veſſel much uſed in ſome metallurgic operations. In figure it repreſents an oblong arch or vault, the hinder part of which is cloſed by a ſemicircular plane, and the lower part or floor of which is a rectangular plane. It is a little oven, placed horizontally in aſſay and enamelling furnaces, ſo that its open ſide correſponds with the door of the fire-place of the furnace. Under this arched oven ſmall cupels or crucibles are placed; and the ſubſtances contained are thus expoſed to heat without contact of fuel, ſmoke, or aſhes. See METALLURGY, *Part* I, *Sect.* VI.

(1.) * *To* **MUFFLE.** *v. a.* [from *mouſle*, French, a winter glove.] 1. To cover from the weather.—

His *muffled* feature ſpeaks him a recluſe,
His ruins prove him a religious houſe. *Cleavel.*

—You muſt be *muffled* up like ladies. *Dryden.*—

The face lies *muffled* up within the garment. *Addiſon.*

Balbutius *muffled* in his ſable cloke,
Like an old Druid from his hollow oak. *Young.*

2. To blindfold.—

Alas that love, whoſe view is *muffled* ſtill,
Should without eyes ſee pathways to his ill. *Shakeſpeare.*

We've caught the woodcock, and will keep him *muffled*. *Shak. All's well that ends well.*

—Our underſtandings lie grovelling in this lower region, *muffled* up in miſts and darkneſs. *Glanv.* —Loſs of ſight is the miſery of life, and uſually the forerunner of death: when the malefactor comes to be once *muffled*, and the fatal cloth drawn over his eyes, we know that he is not far from his execution. *South.*—

Bright Lucifer
That night his heav'nly form obſcur'd with tears;
And ſince he was forbid to leave the ſkies,
He *muffled* with a cloud his mournful eyes. *Dryd.*

—One *muffled* up in the infallibility of his ſect, will not enter into debate with a perſon that will queſtion any of thoſe things which to him are ſacred. *Locke.*—3. To conceal; to involve.—The king's manner of ſhewing things by pieces, and by dark lights, hath ſo *muffled* it, that it hath left it almoſt as a myſtery. *Bacon's Henry* VII.—

No *muffling* clouds, nor ſhades infernal, can
From his inquiry hide offending man. *Sandys.*

The thoughts of kings are like religious groves,
The walks of *muffled* gods. *Dryd. Don Sebaſtian.*

—They were in former ages *muffled* up in darkneſs and ſuperſtition. *Arbuthnot's Hiſt. of John Bull.*

(2.) * *To* **MUFFLE.** *v.n.* [*maſſelen*, *moffelen*, Dut.] To ſpeak inwardly; to ſpeak without clear and diſtinct articulation.—The freedom or apertneſs and vigour of pronouncing, as in the Bocca Romana, and giving ſomewhat more of aſpiration; and the cloſeneſs and *muffling*, and lazineſs of ſpeaking, render the ſound of ſpeech different. *Holder.*

* **MUFFLER.** *n.ſ.* [from *muffle*.] 1. A cover for the face.—Fortune is painted with a *muffler* before her eyes, to ſignify to you that Fortune is blind. *Shak. Henry* V.—Mr Hales has found out the beſt expedients for preventing immediate ſuffocation from tainted air, by breathing through *mufflers*, which imbibe theſe vapours. *Arbuthnot.* 2. A part of a woman's dreſs by which the face was covered.—There is no woman's gown big enough for him; otherwiſe he might put on a hat, a *muffler*, and a handkerchief, and ſo eſcape. *Shak. Merry Wives.*—The Lord will take away your tinkling ornaments, chains, bracelets, and *mufflers*. *Iſa.* iii. 19.

(1.) * **MUFTI.** *n.ſ.* [a Turkiſh word.] The high-prieſt of the Mahometans.

(2.) **MUFTI**, the chief of the eccleſiaſtical order, or primate of the muſſulman religion. The authority of the mufti is very great in the Ottoman empire; for even the ſultan himſelf, if he would preſerve any appearance of religion, cannot, without hearing his opinion, put any perſon to death, or ſo much as inflict any corporal puniſhment. In all actions, eſpecially criminal ones, his opinion is required, by giving him a writing in which the caſe is ſtated under feigned names; which he ſubſcribes with the words, *He ſhall*, or *Shall not be, puniſhed*. Such outward honour is paid to the mufti, that the grand ſignior himſelf riſes up to him, and advances ſeven ſteps towards him when he comes into his preſence. He alone has the honour of kiſſing the ſultan's left ſhoulder, whilſt the prime vizier kiſſes only the hem of his garment. When the grand ſignior addreſſes any writing to the mufti, he ſtyles him "*The eſad, the wiſeſt of the wiſe, inſtructed in all knowledge, the moſt excellent of excellents, the ſpring of virtue, and of true ſcience*," with many ſimilar pompous titles. The election of the mufti is ſolely in the grand ſignior, who preſents him with a veſt of rich ſables, &c. If he is convicted of treaſon, or any great crime, he is put into a mortar kept for that purpoſe in the Seven Towers at Conſtantinople, and pounded to death.

* **MUG.** *n.ſ.* [*Skinner* derives it from *mwgl*, Welſh, warm.] A cup to drink in.—

Ah, Bowzybee, why didſt thou ſtay ſo long?
The *mugs* were large, the drink was wond'rous ſtrong. *Gay.*

MUGA, a town of Spain, in Catalonia.

MUGELN, a town of Saxony, in Wurzen.

(1.) **MUGGIA**, a diſtrict of Maritime Auſtria, in Iſtria, N. of Capo, containing an iſthmus, which produces much ſalt, and good Ribolla wine.

(2.) **MUGGIA NUOVA**, and } or NEW and
(3.) **MUGGIA VECCHIA**, } OLD MUGGIA,
two towns in the above diſtrict, 2 miles from each other. The new town is a populous borough, has a harbour, a cathedral, 5 monaſteries, an hoſpital, and an annual fair.

MUGGISH. See MUGGY.

MUGGLETON, Lodowick, a fanatical Engliſh tailor, born in 1607, who wrote ſeveral books, full of the moſt incoherent rhapſodies, which were burnt as blaſphemous by the hangman, and the author pilloried. He died in 1697, aged 90.

MUGGLETONIANS, a ſect which aroſe in England about 1657; ſo named from their leader MUGGLETON, who, with his aſſociate Reeves, ſet up for great prophets, pretending to have an abſolute power of ſaving and damning whom they pleaſed; and giving out that they were the two laſt witneſſes of God that ſhould appear before the end of the world.

* **MUGGY.** MUGGISH. *adj.* [corrupted from

mucky, for *damp*.] Moiſt; damp; mouldy.—Cover with *muggy* ſtraw to keep it moiſt. *Mortimer*.

* MUGHOUSE. *n. ſ.* [*mug* and *houſe*.] An alehouſe; a low houſe of entertainment.—

> Our ſex has dar'd the *mughouſe* chiefs to meet,
> And purchas'd fame in many a well fought
> ſtreet. *Tickel.*

* MUGIENT. *adj.* [*mugiens*, Lat.] Bellowing.—That a bittern maketh that *mugient* noiſe or bumping, by putting its bill into a reed, or by putting the ſame in water or mud, and after a while retaining the air, but ſuddenly excluding it again, is not eaſily made out. *Brown.*

MUGIL, the MULLET, in ichthyology, a genus of fiſhes belonging to the order of abdominales. The lips are membranaceous, the inferior one being carinated inwards; they have no teeth; the branchioſtege membrane has 7 crooked rays; the opercula are ſmooth and round; and the body is of a whitiſh colour. There are two ſpecies, diſtinguiſhed by the number of rays in the back fin. The mullet is juſtly ranked by Ariſtotle among the *piſces littorales*, or thoſe that prefer the ſhores to the full ſea; they are found in great plenty on ſeveral of the ſandy coaſts of our iſland, and haunt ſmall bays that have influxes of freſh water. They come in great ſhoals, and keep rooting in the ſand or mud, leaving their traces in form of large round holes. They are very cunning; and when ſurrounded with a net, often eſcape by leaping over it; when one does ſo, the others are ſure to follow. This is obſerved by Oppian; who adds, that if they fail to get over at the firſt leap, they never attempt a ſecond, but lie without motion as if reſigned to their fate. They ſometimes ſwarm on the coaſts of the Mediterranean. Near Martigues, in France, great numbers of millets are taken in weres made of reeds placed in the ſhallows. Of the milts of the males, which are there called *alletants*, and of the roes of females, called *botar*, is made botargo. (See BOTARGO.) The materials are taken out entire, covered with ſalt for 4 or 5 hours, then preſſed between two boards or ſtones, waſhed, and at laſt dried in the ſun for 13 or 14 days. This fiſh was ſometimes made the inſtrument of a horrible puniſhment for unfortunate gallants, (ſee ADULTERY, ANCIENT PUNISHMENTS OF). It was uſed both at Athens and Rome; but it is doubtful whether it was a legal puniſhment or not. See *Horace*, Sat. II. *lib.* i. 132.

MUGIL ALBULA, is an excellent fiſh for the table, but at preſent not faſhionable. They are caught in great quantities about the Bahama iſlands at the times they go in ſhoals to ſpawn; and are there eſteemed very good eating. See *Pl.* CCXXV, *fig.* 4.

MUGLIA, a town in Iſtria, 2 miles N. of Capo.

MUGLIANO, a town of Italy, in Tuſcany, 24 miles NW. of Sienna.

MUGLITZ, a town of Moravia, in Olmutz.

MUGRA, a town of Africa, in Algiers.

MUGRON, a town of France, in the department of Landes; 6 miles W. of St Sever.

MUGUE, a town of Aſia, in Sennaar.

(1.) * MUGWORT, *n. ſ.* [*mugwyrt*, Sax. *artemiſia*, Latin.]—The flowers and fruit of the *mugwort* are very like thoſe of the wormwood, but grow erect upon the branches. *Miller.*—Some of the moſt common ſimples with us in England are comfry, bugle, Paul's betony, and *mugwort*. *Wiſeman.*

(2.) MUGWORT, in botany. (See ARTEMISIA, N° III, § 8.) An infuſion of this plant in white wine, or a bath made of it, has always been eſteemed an emmenagogue, and uſeful in difficult perturition. The leaves, when young and tender, are uſed by our Highlanders as a pot herb. The country people in Sweden drink a decoction of them for the ague.

MUHL, a diſtrict of Auſtria.

MUHLBERG, a town of Suabia, in Baden; 6 miles W. of Durlach.

MUHR, a river of Germany, in Suabia.

MUJAXAR, a town of Spain, in Granada.

(1.) MUID, a large meaſure, formerly uſed among the French for things dry. The muid is not a real veſſel, but an eſtimation of ſeveral other meaſures; as the ſeptier, mine, minet, buſhel, &c. See MEASURE, § VII, iv, 2.

(2.) MUID is alſo one of the 9 caſks, or regular veſſels, formerly uſed in France, for wine and other liquors. The muid of wine is divided into 2 demi-muids, 4 quarter-muids, and 8 half-quarter muids, containing 36 ſeptiers. See MEASURE, § VII, iii, 2.

MUINECHAN. See MONAGHAN, N° 2.

MUIRAVONSIDE, a pariſh of Scotland, in Stirlingſhire, 6 miles long and 2 broad, ſeated on the AVON. The ſoil of the E. end is gravelly; the reſt clay, moſs and moor. Great part of it is incloſed; the farms are ſmall; the rents high; the harveſt early. Corn and lint are the chief crops. The population, in 1791, was 1065: decreaſe 474 ſince 1755. Coal and iron-ſtone abound. There are 17 mills on the Avon.

MUIRHOUSE, or MURROES, a pariſh of Scotland, in Forfarſhire. The church is 5 miles from Dundee. The air is dry and healthful; the ſoil fertile; oats, barley, and hay, are the chief crops. The population, in 1793, was 462: decreaſe 161 ſince 1755.

(1.) MUIRKIRK, a pariſh of Scotland, in Ayrſhire. The ſoil is alternately moſſy, light, and gravelly. The climate is ſharp, but ſalubrious. Oats, bear, rye, and potatoes, are the chief crops. Huſbandry is little improved, the ground being moſtly laid out in paſturing 14,000 ſheep, and 75 horſes. The population, in 1792, was 1100: increaſe 355 ſince 1755.

(2.) MUIRKIRK, a village in the above pariſh, on Garan hill, 20 miles E. of Ayr. It has conſiderable manufactures of iron, coal tar, and lamp black.

MUIS, Simon DE, profeſſor of Hebrew at Paris, was author of a valuable Commentary on the Pſalms, in Latin. He died in 1664.

MUKATERA, a fort of Arabia, in Yemen.

MULA, a town of Spain, in Murcia.

MULATAS, a cluſter of iſles, near Darien.

(1.) * MULATTO. *n. ſ.* [Spaniſh; *mulat*, Fr. from *mulus*, Latin.] One begot between a white and a black, as a mule between different ſpecies of animals.

(2.) MULATTO is particularly uſed in the Indies for thoſe who are begotten by a negro man on an

Indian woman, or by an Indian man on a negro woman.

MULAZZO, a town of Italy, in Liguria; 15 miles N. of Spezza.

MULBECK. See MEERBECK.

(1.) * MULBERRY. MULBERRY *tree. n. ſ. morberig*, Saxon; *morus*, Latin. 1. The *mulberry tree* hath large, rough, roundiſh leaves; the male flowers, or katkins, which have a calyx conſiſting of four leaves, are ſometimes produced upon ſeparate trees, at other times at remote diſtances from the fruit on the ſame tree: the fruit is compoſed of ſeveral protuberances, to each of which adhere four ſmall leaves; the ſeeds are roundiſh, growing ſingly in each protuberance: it is planted for the delicacy of the fruit. The white *mulberry* is commonly cultivated for its leaves to feed ſilk worms in France and Italy, though the Perſians always make uſe of the common black *mulberry* for that purpoſe. *Miller.*—Morton, archbiſhop of Canterbury, was content to uſe *mor* upon a *tun;* and ſometimes a *mulberry tree*, called morus in Latin, out of tun. *Camd.*—2. The fruit of the tree.—

The ripeſt *mulberry*,
That will not hold the handling. *Shak.*

—A body black, round, with ſmall grain like tubercles on the ſurface; not very unlike a *mulberry*. *Woodward.*

(2.) MULBERRY, in botany. See MORUS. From the nouriſhment which it affords to the ſilk-worm, that valuable inſect to which we are indebted for the materials of our fineſt ſtuffs, the method of cultivating the mulberry tree muſt be peculiarly intereſting wherever its culture can be undertaken with ſucceſs. In France and Italy, vaſt plantations of theſe trees are made ſolely for their leaves to feed theſe little animals, which amply reward the poſſeſſors with the ſupply of ſilk which they ſpin from their bowels. Plantations of mulberry trees have, at different times, been recommended in this country for the ſame purpoſe; though nothing has yet been done in that way to any extent, and even the expediency of ſuch an attempt has been doubted by others, upon the ground of its interfering with other branches of rural economics more productive and more congenial to our climate. In the European ſilk countries, many varieties of mulberry trees are diſtinguiſhed, ariſing from difference of climate, ſoil, method of culture, and other accidental cauſes. Among the wild mulberries, we meet with ſome whoſe leaves are roundiſh, and reſembling thoſe of a roſe: hence they have been called the *roſe-leaved* mulberries. Mulberry trees were firſt cultivated in France, in the reign of Charles IX. It has been found by experience, that theſe trees are not ſo peculiar to warm countries, as Spain, Italy, &c. but that they may alſo thrive very well in other countries, ſuch as Touraine, Poitou, Maine, Anjou, and even in Germany, where it affords good nouriſhment for ſilk-worms. They grow in all kinds of ſoil; they thrive beſt in ſtrong and wet lands; but it is alleged that their leaves conſtitute too coarſe food, prejudicial to the worms, and unfavourable to the quality of the ſilk.—A good light land is the beſt ſoil for raiſing them. White mulberry trees grow in ſandy ſoils where heath would ſcarcely vegetate; but their leaves are too dry, and afford not ſufficient nouriſhment for the ſilk-worms. Mulberry trees may be propagated either from ſhoots which have taken root, or by ſeed, layers, and ſlips. To raiſe black mulberry trees, the ſeed muſt be taken from the largeſt and moſt beautiful mulberries: in raiſing white ones, the ſeed is taken from the fineſt mulberries growing on trees with large whitiſh ſoft and tender leaves, and as little cut as poſſible. The beſt ſeed is commonly got from Piedmont, Languedoc, &c. M. Duhamel ſays, that ſeed ſhould be preferred which is gathered in countries where the cold is ſometimes pretty ſevere; becauſe, in that caſe, the trees are better able to reſiſt the attacks of the froſt. In ſevere winters, M. Bourgeois obſerves, the ſtalks of the young mulberry trees, eſpecially during the firſt winter, are often deſtroyed by the froſt; but when they are cut cloſe to the earth, they ſend forth as beautiful and vigorous ſtalks as the former. Good ſeed is large, heavy, light-coloured, produces a great deal of oil when it is preſſed, and crackles when thrown on a red-hot ſhovel. It muſt be ſown in good land. In the autumn of the 2d year, all thoſe trees muſt be pulled up which have ſmall leaves of a very deep green, rough, and deeply indented, for they would produce no leaves proper for the ſilk-worms.—In the 3d year, when the mulberry tree is about the thickneſs of the finger, it muſt be taken up and put in the nurſery. Bourgeois ſays, mulberries ought to be tranſplanted in the ſpring of the 2d year, which makes them thrive better, and ſooner attain their growth. Without this tranſplantation, they would put forth only one root like a pivot, and moſt of them would be in danger of periſhing when taken up to be put where they are intended to remain. Some cultivators ſay, that all the young trees, whether large or ſmall, ſtraight or crooked, ought to be cut cloſe to the ground in the third year, that they may put forth a greater number of roots. Others never employ this method but with regard to thoſe which are crooked, or in a languiſhing ſtate. White mulberries may be raiſed for the food of ſilk-worms, either in the form of a copſe, or planted in a regular order, by letting them grow to their natural ſize. Ingrafting is one of the ſureſt methods of procuring fine leaves from mulberries. Mulberries ingrafted on wild ſtocks choſen from a good kind, ſuch as thoſe which are produced from the ſeed of the Italian mulberry, commonly called the *roſe mulberry*, or of the Spaniſh mulberry, produce, as M. Bourgeois obſerves, much more beautiful leaves, and of a much better quality for ſilk-worms, than thoſe which are ingrafted on the common or prickly ſmall-leafed wild ſtock. The ſame obſervation has been made by many cultivators, particularly by M. Thomé of Lyons, whoſe authority has great weight. Ingrafted mulberries produce a greater number of leaves, and more nouriſhing for ſilk-worms than wild mulberries. The latter, however, may exiſt for two centuries; whereas the extenſion of leaves produced by ingrafting, occaſions a premature diſſipation of the ſap of the tree, and thereby accelerates its decay. In a memoir inſerted in a treatiſe on the culture of white mulberries by M. Pomier, it is recommended to ingraft white mulberries upon black ones; and there is reaſon to think that by following this plan the trees would exiſt much longer: for the white mulberry commonly decays firſt in the root, whereas the black mulberry is not ſubject to any malady. In many books on agriculture we find it aſſerted, that mulberries may be ingrafted on elms: But M. Duhamel ſays, he has often tried it in vain, and thinks, "it cannot be attended with any advantage." Mulberries, ingrafted on fig and lime trees, will not ſucceed, unleſs there be a great analogy betwixt the trees. The greater care we take of mulberries, by dreſſing them, and lopping off the overgrown branches, they produce the greater number of good leaves. It is very prejudicial to young mulberry trees to ſtrip them of their leaves, becauſe theſe are the organs of perſpiration, and contribute to nutrition by abſorbing the moiſture of the atmoſphere. Mulberry trees are ſo plentifully ſtored with ſap, that they renew their leaves ſometimes twice or thrice. When the winter is mild, they put forth their leaves very early; but it is always dangerous to accelerate the hatching of the worms in expectation of this; for no leaves can be depended upon till the beginning of May, thoſe which are prior to this period being in danger of being deſtroyed by the froſts. In Tuſcany, eſpecially near Florence, M. Nollet tells us, that though the inhabitants do not cultivate half ſo many mulberries as the Piedmonteſe, they rear and feed double the quantity of ſilk worms. For this purpoſe they cauſe the worms hatch only at two different ſeaſons. The firſt worms which are hatched are fed on the firſt produce of the mulberry trees; and when theſe have produced their ſilk, other worms are hatched, which are nouriſhed on the 2d crop of the ſame trees. M. Bourgeois ſays, that ſeveral kinds of white mulberries are now cultivated near Bienne in Switzerland, and that the prickly mulberry is the leaſt eſteemed of all the white wild mulberries. Its branches are rough with prickles; its leaves are of a ſmall ſize and few in number; and the reaping of them is difficult and expenſive. The common wild mulberry produces indented leaves, oblong, and very ſlender; but it thrives very well when planted in a hedge, and in a favourable expoſure. It is alſo earlier in the ſpring than the other ſpecies. The wild mulberry, which is produced from the roſe or Italian ingrafted mulberry, bears a great number of leaves, of a roundiſh ſhape and middling ſize, inclining to a light yellow, and of an excellent quality. Of the white ingrafted mulberry trees, the roſe, or Italian ingrafted, which is now the ſpecies moſt cultivated in France, Italy, and Piedmont, produces great abundance of large thick and ſmooth leaves. It has now come into great repute, in conſequence of the recommendation of M. Thomé, who prefers it to all other ſpecies of mulberry trees for raiſing ſilk-worms. It is extremely delicate, however, and ſuffered greatly in Switzerland from the ſevere winters of 1766 and 1767. The mulberry called *Roman leaf* is diſtinguiſhed from every other ſpecies by its very large leaves, ſome of which are often found equal in ſize to thoſe of a gourd. The Spaniſh mulberry greatly reſembles the wild roſe mulberry, except that its leaves are larger and more pointed. It can reſiſt the ſtrongeſt froſts and the ſevereſt winters in cold climates. The leaves of the mulberry, called the *ſmall queen*, are oblong, moderately large, and exceedingly ſmooth: This ſpecies is of an excellent quality, and much eſteemed.

(3.) Mulberry Blite. See Blitum.

(4.) Mulberry Cyder, a name given by the people of Devonſhire, and ſome other parts of England, to a ſort of cyder rendered very palatable by an admixture of mulberry juice in the making; they chooſe for this purpoſe the ripeſt and blackeſt mulberries, and preſſing out their juice, and mixing it with a full-bodied cyder at the time of the grinding and preſſing, give juſt ſo much of it as adds a perceptible flavour. It is worthy the attention of the people who live in other countries, where ſtrong and good cyder is made, that this renders it a ſort of wine much more agreeable than any other Engliſh liquor, and might be brought into general uſe, to the great advantage of the dealer. The colour of this liquor reſembles that of the brighteſt red wine, and the flavour of the mulberry never goes off. *Philoſ. Tranſ.* N° 133.

* MULCT. *n. ſ.* [*mulcta*, Latin.] A fine; a penalty: uſed commonly of pecuniary penalty.—

Doe you then Argive Helena, with all her
treaſure here,
Reſtore to us, and pay the *mulct*, that by your
vows is due. *Chapman.*

—Becauſe this is a great part, and Euſebius hath ſaid nothing, we will, by way of *mulct* or pain, lay it upon him. *Bacon.*

A *mulct* thy poverty could never pay,
Had not eternal wiſdom found the way. *Dryd.*

* *To* Mulct. [*v. a. mulcto*, Latin; *mulcter*, Fr.] To puniſh with fine or forfeiture.—Marriage without conſent of parents they do not make void, but they *mulct* it in the inheritors. *Bacon.*

(1, 2.) MULDA, two rivers of Saxony, the one running into the Muldau, the other into the Elbe.

(3.) Mulda, a town of Upper Saxony, in Erzgeburg; eight miles SSE. of Freyburg.

(1.) MULDAU, a river in Germany which riſes in the mountains between Bohemia and Bavaria, and runs into the Elbe, near Deſſau.

(2.) Muldau, or Moldau. See Moldau.

MULDORF, a town of Bavaria, in Salzburg.

MULDSCHEN, a town of Lithuania.

(1.) * MULE. *n. ſ.* [*mule*, *mulet*, French; *mula*, Latin.] An animal generated between a he aſs and a mare, or ſometimes between a horſe and a ſhe aſs.—

You have among you many a purchas'd ſlave,
Which, like your aſſes, and your dogs, and
mules,
You uſe in abject and in ſlaviſh part. *Shak.*

Five hundred aſſes yearly took the horſe,
Producing *mules* of greater ſpeed and force.
Sandys.

—Thoſe effluvia in the male ſeed have the greateſt ſtroke in generation, as is demonſtrable in a *mule*, which doth more reſemble the parent, that is, the aſs, than the female. *Ray.*—

Twelve young *mules*, a ſtrong laborious race.
Pope.

(2.) **Mule**, in zoology, is extended to every kind of animal produced by a mixture of two different ſpecies. There are two kinds of mules; one from the he-aſs and mare, the other from the horſe and the ſhe-aſs. We call them indifferently *mules*, but the Romans diſtinguiſhed them by proper appellations. The firſt kind are the beſt and moſt eſteemed; as being larger, ſtronger, and having leaſt of the aſs in their diſpoſition. The largeſt and ſtouteſt aſſes, and the faireſt and fineſt mares, are choſen in thoſe countries where theſe creatures are moſt uſed; as in Spain, Italy, and Flanders. In the laſt eſpecially, they ſucceeded in having very ſtately mules from the ſize of their mares, ſome of them 16 and ſome 17 hands high, which are very ſerviceable as ſumpter mules in the army. But fewer mules are now bred in the Low Countries than formerly. Theſe creatures are ſtronger, ſurer footed, go eaſier, are more cheaply maintained, and laſt longer than horſes. They are commonly of a black, or black brown, with a ſhining liſt along the back and acroſs the ſhoulders, which diſtinguiſhes aſſes. They were formerly much more common in this country than at preſent; being often brought over in the days of Popery by the Italian prelates. They continued longeſt in the ſervice of millers; and are yet in uſe among them in ſome places, on account of the great loads they carry. As they are capable of being trained for riding, bearing burdens, and for draught, there is no doubt that they might be uſefully employed in many different ſervices. But they are commonly vicious, ſtubborn, and obſtinate to a proverb; which, whether it occaſions or is produced by the ill uſage they meet with, is not eaſily ſettled. Mules are larger, fairer, and more ſerviceable in mild than in warm climates. In the Britiſh American colonies, both on the continent and in the iſlands, but eſpecially in the latter, they are much uſed and eſteemed; ſo that they are frequently ſent to them from hence, ſuffer leſs in the paſſage, and die much ſeldomer than horſes; and commonly yield, when they arrive, no inconſiderable profit. It has been aſſerted, that animals produced by the mixture of two heterogeneous ſpecies are incapable of generating, and thus perpetuating the monſtrous breed; but this, ſays Count Buffon, is a miſtake. Ariſtotle, ſays he, tells us, that the mule engenders with the mare, and that the junction produces an animal which the Greeks call *hinnus*, or *ginnus*. He likewiſe remarks, that the ſhe-mule eaſily conceives, but ſeldom brings the fœtus to perfection. But the moſt remarkable and well atteſted inſtance of this fact, is mentioned in a letter read by M. d'Alembert before the Academy of Sciences, which informed him that a ſhe-mule in the iſland of St Domingo had brought forth a foal. The fact was atteſted by perſons of the moſt unqueſtionable veracity; and other inſtances, though not ſo well authenticated, are adduced by our author. We may therefore, continues M. Buffon, conſider it as an eſtabliſhed fact, that the he mule can generate and the ſhe mule produce. Like other animals they have a ſeminal liquor, and all the organs neceſſary to generation. But mongrel animals are always leſs fertile, and more tardy than thoſe of a pure ſpecies. Beſides, mules have never produced in cold climates, ſeldom in warm regions, and ſtill more ſeldom in temperate countries. Hence their barrenneſs, without being abſolute, may be regarded as poſitive; ſince their productions are ſo rare, that a few examples can be only collected. The tranſlator of Buffon's works, in a note on the paſſage above quoted, has given a remarkable and well authenticated inſtance of the prolific powers of a ſhe mule in the north of Scotland. Having heard that a mule, belonging to Mr David Tullo farmer in Auchtertyre, in the pariſh of Newtyle, Forfarſhire, had ſome years ago brought forth a foal, he tranſmitted a few queries to be put to Mr Tullo; and requeſted that his anſwers might be legally atteſted before a magiſtrate. This requeſt was cheerfully complied with; and the following is an exact copy of the anſwers, atteſted by George Watſon, Eſq. J. P. and by James Small and Robert Ramſay, tenants in Burmouth and Newtyle: at Auchtertyre, on the 4th Feb. 1780: "That he bought a ſhe mule about 20 years ago; that ſhe was conſtantly in ſeaſon for a horſe; that, about ſome years thereafter he gave her a horſe, and that ſhe thereafter gave him a foal, about the 10th of June; the mule's price was 4l. 5s. Sterling; that the foal was exactly the colour of its mother, inclined to black, with a very large head, big ears, and ſmall tail; and the declarant thinks, had its head been weighed when foaled, it would have weighed nearly as much as its body. The next day after the mule foaled, it was ſent, with its mother, to the Loch of Lundie, in order to let the foal die, as the declarant could not want the mule's work, and the mother ſeemed not fond of the foal; that it was accordingly left, and next day came to Auchtertyre, about two miles diſtance, over a hill, with the cattle of Auchtertyre, that had been grazing near to that place, and was drowned in a ditch the day following," &c.

(3.) **Mules**, or **Hybrid** plants, among gardeners, are a ſort of vegetable monſters produced by putting the farina fœcundans of one ſpecies of plant into the piſtil or utricle of another. See **Botany**, *Index*. The carnation and ſweet-william being ſomewhat alike in their parts, particularly their flowers, the farina of the one will impregnate the other, and the ſeed ſo enlivened will produce a plant differing from both. An inſtance of this we firſt had in Mr Fairchild's garden at Hoxton; where a plant is ſeen neither ſweet-william nor carnation, but reſembling both equally; this was raiſed from the ſeed of a carnation that had been impregnated by the farina of the ſweet-william. This furniſhes a hint for altering the properties and taſte of any fruit, by impregnating one tree with the farina of another of the ſame claſs; *e. gr.* a codlin with a pear-main, which will occaſion the codlin ſo impregnated to laſt a longer time than uſual, and to be of a ſharper taſte. If the winter fruits be fecundated with the duſt of the ſummer kinds, they will ripen before their uſual time. From this accidental coupling of the farina of one with another, it ariſes that in an orchard where there is variety of apples, even the fruit gathered from the ſame tree differ in their flavour, and in the ſeaſon of maturity. It is alſo from the ſame accidental coupling, that the numberleſs varieties of fruits and flowers raiſed every day from ſeed proceed.

(4.) Mule, Wild or Fecund. See Equus, N° iv.

MULETA, a town of Naples in Calabria.

* MULETEER. *n. ſ.* [*mulietier*, French; *mulio*, Latin.] Mule-driver; horſe-boy.—

Baſe *muleteers*,
Like peaſant foot-boys do they keep the walls,
And dare not take up arms like gentlemen. *Shak.*
Your ſhips are not well mann'd,
Your mariners are *muleteers*, reapers. *Shak.*

MULEVO, a town of Ruſſia, in Viatka.

MULFINGEN, a town of Franconia, in Wurzburg, ſix miles S. of Mergentheim, and 31 S. of Wurzburg.

(1.) MULHAUSEN, a conſiderable town of Germany, in Alſace, and capital of a republic in alliance with the Swiſs. It is populous, well built, and adorned with handſome public ſtructures; ſeated in a pleaſant fertile country, on an iſland formed by the river Ill, 15 miles NW. of Baſle, and 20 E. of Befort. Lon. 7. 24. E. Lat. 47. 48. N.

(1.) Mulhausen, an imperial and Hanſeatic town of Upper Saxony in Thuringia, under the protection of the elector of Saxony; ſeated in a fertile country, on the Unſtrut, 15 miles NE. of Eiſenach, and 45 E. by S. of Caſſels. Lon. 10. 49. E. Lat. 51. 13. N.

MULHEIM, two towns of Weſtphalia, in the duchy of Berg, viz. 1. on the Roer, 14 miles N. of Duſſeldorp: 2. on the E. bank of the Rhine, three miles N. of Cologn.

* MULIEBRITY. *n. ſ.* [*muliebris*, Latin.] Womanhood; the contrary to virility; the manners and character of woman.

MULIER, in Engliſh law, ſignifies the lawful iſſue born in wedlock, though begotten before. The mulier is preferred to an elder brother born out of matrimony; for inſtance, if a man has a ſon by a woman before marriage, which iſſue is a baſtard, and afterwards marries the mother of the baſtard, and they have another ſon, this 2d ſon is mulier and lawful, and ſhall be heir of the father; but the other can be heir to no perſon. See Bastard, N° I. § 3. By the civil law, where a man has iſſue by a woman, if after that he marries her, the iſſue is mulier.

MULINGEN, two towns of Germany, in Upper Saxony, in Anhalt Zerbſt, viz.

1. Mulingen Gross, 14 miles W. of Zerbſt. In 1632 it was taken by the Imperialiſts under Count Papenheim, and given up to the avarice and brutality of the ſoldiers.

2. Mulingen Klein, 12 miles W. of Zerbſt.

* To MULL. *v. a.* [*mollitus*, Lat.] 1. To ſoften and diſpirit, as wine is when burnt and ſweetened. *Hanmer.*—

Peace is a very apoplexy, lethargy
Mull'd, deaf, ſleepy, inſenſible. *Shak. Coriol.*

2. To heat any liquor, and ſweeten and ſpice it.—

Drink new cyder *mull'd*, with ginger warm. *Gay.*

(1.) Mull, one of the Weſtern Iſlands of Scotland, about 25 miles long, and 25 broad. It is in general rocky and barren, producing little corn. The total population, in 1795, was 7600. A great number of cattle are annually exported, which with fiſh and kelp are the only articles of commerce. It is deeply indented with bays and creeks, forming in ſeveral parts good natural harbours. There are no villages except Tobermorey, near the N. point of the iſland, where a fiſhing ſtation is erected. The iſland was originally part of the dominions of the Lords of the iſles. The ruins of ſeveral ancient caſtles are ſeen on it. In 1588, one of the Spaniſh Armada was blown up on this coaſt. Lon. 3. 0. W. of Edin. Lat. 56. 26. N.

(2.) Mull of Cantyre. See Kintyre, N° 2.

(3.) Mull of Galloway. See Galloway, N° V.

(4.) Mull, Sound of, a narrow ſea of Scotland between the iſle of Mull (N° 1.) and Agyllſhire.

MULLAGHCARN, a mountain of Ireland, in Tyrone, 12 miles SSE. of Strabane.

MULLAHA, mountains of Ireland, in Leitrim, four miles E. of Manor-Hamilton.

MOLLAVILLY, a town of Indoſtan, in Myſore, 22 miles E. of Seringapatam.

MULL-BUI, or MULLBUY, } hills of Roſs-ſhire and Cromarty, comprehending an extenſive tract of common, which runs nearly the whole length of Black Iſle, from Cromarty to Beauly; being 16 miles long from E. to W. and 2 broad.

MULLE, a river of Wales in Montgomery.

(1.) * MULLEIN. *n. ſ.* [*verbaſcum*, Latin.] A plant. *Miller.*

(2.) Mullein. See Verbascum.

MULLEN. *n. ſ.* in lithology. See Mineralogy, *Part* II. *Chap.* IV. *Sect.* III. *Gen.* vi. *Sp.* 3.

(1.) MULLER, or Regiomontanus, John, a celebrated aſtronomer of the 15th century, born at Koningſhoven, in Franconia, in 1436. He acquired great reputation by publiſhing an abridgment of Ptolomy's Almageſt, which had been begun by Purback. He went to Rome to perfect himſelf in the Greek tongue, and to ſee Cardinal Baſſarion; but finding ſome faults in the Latin tranſlations of George de Trebizond, that tranſlator's ſon aſſaſſinated him, in a ſecond journey he made to Rome in 1476, where Pope Sixtus IV. had provided for him the archbiſhopric of Ratiſbon, and had ſent for him to reform the calendar. Others ſay, that he died of the plague.

(2.) Muller, John, a celebrated engraver, who flouriſhed about 1600, and had been bred under Henry Goltzius, whoſe ſtyle he cloſely imitated. His engravings are excellent and very ſcarce.

(3.) * Muller. *n. ſ.* [*mouleur*, Fr.] A ſtone held in the hand with which any powder is ground upon a horizontal ſtone. It is now often called improperly *mullet*.—The beſt grinder is the porphyry, white or green marble, with a *muller* or upper ſtone of the ſame, cut very even without flaws or holes; you may make a *muller* alſo of a flat pebble, by grinding it ſmooth at a grindſtone. *Peacham.*

(4.) *A* Muller, or Mullar, is a ſtone flat and even at bottom, but round atop; uſed for grinding matters on a marble. The apothecaries uſe mullers to prepare their teſtaceous powders; and painters for their colours, either dry or in oil.

(5.) MULLER is alſo an inſtrument uſed by glaſs-grinders; being a piece of wood, to one end whereof is cemented the glaſs to be ground, whether convex in a baſon, or concave in a ſphere or bowl. It is ordinarily about ſix inches long, turned round; the cement they uſe is compoſed of aſhes and pitch. See GLASS-MAKING, *Sect.* XIII. § 2.

MULLERA, in botany, a genus of the decandria order, belonging to the diadelphia claſs of plants.

MULLERAS, a town of Germany, in the circle of Upper Saxony, and marquiſate of Brandenburg, 38 miles S. of Berlin, upon a canal which joins the Oder and the Spree. This canal is 15 miles long, 10 yards broad, and 7 feet deep. It was 8 years in making. The cities of Hamburg and Breſlaw carry on great trade by it. Lon. 14. 50. E. Lat. 52. 21. N.

(1.) * MULLET. *n. ſ.* [*mullus*, Lat. *mulet*, Fr. A ſea-fiſh.

Of carps and *mullets* why prefer the great?
Yet for ſmall turbots ſuch eſteem profeſs. *Pope.*

(2.) MULLET, in ichthyology. See MUGIL.

(3.) MULLET, or MOLLET, in heraldry, a bearing in form of the rowel of a ſpur, which it originally repreſented.

(4.) MULLET, in geography, a peninſula of Ireland, in Mayo, nine miles long, and two broad. It is fertile and populous.

MULLICAS, a river of New Jerſey, which runs into the Atlantic, S. of Egg harbour.

* MULLIGRUBS. *n. ſ.* Twiſting of the guts; ſometimes ſullenneſs. *Ainſworth.*

MULLINGAR, a poſt town, borough, and manor of Ireland, in Weſt Meath; and the county town. It has a barrack for two troops of horſe. A few miles from it are the ruins of a church, and a caſtle. It is ſituated on the Feyle. It holds a great wool fair, and is a place of good trade. In 1227, the priory of St Mary, formerly known by the name of *The Houſe of God of Mullingar*, was founded here by Ralph de Petyt, Biſhop of Meath, for regular canons of St Auguſtin's order. A Dominican friary was alſo founded here in 1237 by the family of Nugent; ſome ruins of which ſtill remain. It has fairs on the 6th April, 4th and 5th July, 29th Aug. and 11th Nov.; and lies 38 miles from Dublin. Lon. 7. 50. W. Lat. 53. 30. N.

* MULLOCK. *n. ſ.* Rubbiſh. *Ainſworth.*

MULLOOIA, a fort of Africa, in Fez.

MULLREA, mountains of Ireland, in Mayo.

MULLUS, the SURMULLET, in ichthyology, a genus of fiſhes belonging to the order of thoracici. (See *Plate* CCXXV. *fig.* 5.) This fiſh was highly eſteemed by the Romans, and bore an exceeding high price. The capricious epicures of Rome in Horace's days valued it in proportion to its ſize; not that the larger were more delicious, but that they were more difficult to be got. The price that was given for one in the time of Juvenal and Pliny is a ſtriking evidence of the luxury and extravagance of the age:

The laviſh ſlave
Six thouſand pieces for a mullet gave,
A ſeſterce for each pound; *Dryden.*

or 48l. 8s. 9d. But Aſinius Celer, a man of conſular dignity, gave 8000 *nummi*, or 64l. 11s. 8d. for a fiſh of ſo ſmall a ſize as the mullet; for, according to Horace, a *mullus trilibris*, or one of three lb. was a great rarity. But Seneca ſays, that it was not worth a farthing except it died in the very hand of the gueſt; that ſuch was the luxury of the times, that there were ſtews even in the eating-rooms, ſo that the fiſh could at once be brought from under the table, and placed on it; and that they put the mullets in tranſparent vaſes, that they might be entertained with the various changes of its rich colours while it lay expiring. Apicius firſt hit upon the method of ſuffocating them in the exquiſite Carthaginian pickle, and afterwards procured a rich ſauce from their livers.—This is the man whom Pliny ſtyles *Nepotum omnium altiſſimus gurges;* an expreſſion too forcible to be tranſlated. The body of this fiſh is very thick, and covered with large ſcales; beneath them the colour is a moſt beautiful roſy red, the changes of which under the thin ſcales gave that entertainment to the Roman epicures above mentioned. The ſcales on the back and ſides are of a dirty orange; thoſe on the noſe a bright yellow; the tail a reddiſh yellow.

MULLUVIA, or MULLOEIAH, a river of Africa, which divides the empire of Morocco from that of Algiers, and runs into the Mediterranean 15 leagues SE. of Melilla.

MULNITZA, a town of Croatia.

MULROY BAY, a bay of Ireland, on the N. coaſt of Donegal; ſix miles W. of Lough Swilly.

* MULSE. *n. ſ.* [*mulſum*, Lat.] Wine boiled and mingled with honey. *Dict.*

* MULTANGULAR. *adj.* [*multus* and *angulus*. Latin.] Many-cornered; having many corners; polygonal.

* MULTANGULARLY. *adv.* [from *multangular.*] Polygonally; with many corners.—Granates are *multangularly* round. *Grew.*

* MULTANGULARNESS. *n. ſ.* [from *multangular*. The ſtate of being polygonal, or having many corners.

MULTENEN, a town of Pruſſia, in Natangen; four miles SE. of Gerdawen.

* MULTICAPSULAR. *adj.* [*multus* and *capſula*, Lat.] Divided into many partitions or cells. *Dict.*

* MULTICAVOUS. *adj.* [*multus* and *cavus.*] Full of holes. *Dict.*

* MULTIFARIOUS. *adj.* [*multifarious*, Latin.] Having great multiplicity; having different reſpects; having great diverſity in itſelf.—There is a *multifarious* artifice in the ſtructure of the meaneſt animal. *More.*—When we conſider this ſo *multifarious* congruity of things in reference to ourſelves, how can we with-hold from inferring, that that which made both dogs and ducks made them with a reference to us? *More.*—His ſcience is not moved by the guſts of fancy and humour, which blow up and down the *multifarious* opinioniſts. *Glanville.*—We could not think of a more comprehenſive expedient, whereby to aſſiſt the frail and torpent memory through ſo *multifarious* and numerous an employment. *Evelyn.*

* MULTIFARIOUSLY. *adv.* [from *multifarious.*] With multiplicity; with great variety of modes or relations.—If only twenty-four parts may be ſo *multifariouſly* placed, as to make many millions of millions of differing rows. In the ſuppoſition of a

thouſand parts, how immenſe muſt that capacity of variation be? *Bentley*.

* MULTIFARIOUSNESS. *n. ſ.* [from *multifarious*.] Multiplied diverſity.—According to the *multifariouſneſs* of this imitability, ſo are the poſſibilities of being. *Norris*.

* MULTIFIDOUS. *adj.* [*multifidus*, Latin.] Having many partitions; cleft into many branches.—Theſe animals are only excluded without ſight, which are multiparous and *multifidous*, which have many at a litter, and have feet divided into many portions. *Brown*.

MULTIFIDUM FOLIUM, } See BOTANY, *Gloſſary*.
MULTIFLOROUS. *adj.* }

* MULTIFORM. *adj.* [*multiformis*, Latin.] Having various ſhapes or appearances.—

Ye that in quaternions run
Perpetual circle, *multiform*. *Milton*.

—The beſt way to convince is proving, by ocular demonſtration, the *multiform* and amazing operations of the air-pump and the load-ſtone. *Watts*.

* MULTIFORMITY. *n. ſ.* [*multiformis*, Lat.] Diverſity of ſhapes or appearances ſubſiſting in the ſame thing.

* MULTILATERAL. *adj.* [*multus* and *lateralis*, Latin.] Having many ſides. *Dict.*

* MULTILOQUOUS. *adj.* [*multiloquus*, Lat.] Very talkative. *Dict.*

* MULTINOMINAL. *adj.* [*multus* and *nomen*, Lat.] Having many names. *Dict.*

* MULTIPAROUS. *adj.* [*multiparus*, Latin.] Bringing many at a birth.—Double formations do often happen to *multiparous* generations, more eſpecially that of ſerpents, whoſe conceptions being numerous, and their eggs in chains, they may unite into various ſhapes, and come out into mixed formations. *Brown*.—Animals feeble and timorous are generally *multiparous*; or if they bring forth but few at once, as pigeons, they compenſate that by their often breeding. *Ray on the Creation*.

* MULTIPEDE. *n. ſ.* [*multipeda*, Latin.] An inſect with many feet; a ſow or wood-louſe. *Bailey*.

* MULTIPLE. *adj.* [*multiplex*, Latin.] A term in arithmetic, when one number contains another ſeveral times; as, nine is the *multiple* of three, containing it three times. Manifold.

MULTIPLEPOINDING, ACTION OF, in Scots law. See LAW, *Part* III. *Chap.* III. *Sect.* I. § 21.

* MULTIPLIABLE. *adj.* [*multipliable*, French; from *multiply*.] Capable to be multiplied.

* MULTIPLIABLENESS. *n. ſ.* [from *multipliable*.] Capacity of being multiplied.

* MULTIPLICABLE. *adj.* [from *multiplico*, Latin.] Capable of being arithmetically multiplied.

(1.) * MULTIPLICAND. *n. ſ.* [*multiplicandus*, Lat.] The number to be multiplied in arithmetic. Multiplication hath the *multiplicand*, or number to be multiplied; the multiplier, or number given, by which the *multiplicand* is to be multiplied, and the product. *Cocker*.

(2.) MULTIPLICAND. See ARITHMETIC, *Index*.

(1.) * MULTIPLICATE. *adj.* [from *multiplico*, Lat.] Conſiſting of more than one.—In this *multiplicate* number of the eye, the object ſeen is not multiplied, and appears but one, though ſeen with two or more eyes. *Derham*.

(2.) MULTIPLICATE FLOWERS. See BOTANY, *Index*.

(1.) * MULTIPLICATION. *n. ſ.* [*multiplication*, French; *multiplicatio*, Latin.] 1. The act of multiplying or increaſing any number by addition or production of more of the ſame kind.—Although they had divers ſtyles for God, yet under many appellations they acknowledged one divinity; rather conceiving thereby the evidence or acts of his power in ſeveral ways than a *multiplication* of eſſence, or real diſtractions of unity in any one. *Brown*. 2. [In arithmetic.] *Multiplication* is the increaſing of any one number by another, ſo often as there are units in that number, by which the one is increaſed. *Cocker*. A man had need be a good arithmatician to underſtand this author's works; his deſcription runs on like a *multiplication* table. *Addiſon*.

(2.) MULTIPLICATION, in algebra. See ALGEBRA, *Part* I. *Chap.* I. *Sect.* I. *Prob.* III.

(3.) MULTIPLICATION. See ARITHMETIC, *Ind.*

* MULTIPLICATOR. *n. ſ.* [*multiplicateur*, Fr. from *multiplico*, Latin.] The number by which another number is multiplied.

MULTIPLICATUS FLOS. See BOTANY, § 96, 1.

* MULTIPLICIOUS. *adj.* [*multiplex*, Lat.] Manifold. Not uſed.—Amphiſbæna is not an animal of one denomination; for that animal is not one, but *multiplicious*, or many, which hath a duplicity or gemination of principal parts. *Brown*.

* MULTIPLICITY. *n. ſ.* [*multiplicite*, Fr.] 1. More than one of the ſame kind.—Had they diſcourſed rightly but upon this one principle, that God was a being infinitely perfect, they could never have aſſerted a *multiplicity* of gods; for, can one god include in him all perfection, and another god include in him all perfections too? Can there be any more than all? And if this all be in one, can it be alſo in another? *South*.—Company, he thinks, leſſens the ſhame of vice, by ſharing it; and abates the torrent of a common odium, by driving it into many channels; and therefore, if he cannot wholly avoid the eye of the obſerver, he hopes to diſtract it at leaſt by a *multiplicity* of the object. *South*. 2. State of being many.—You equal Donne in the variety, *multiplicity*, and choice of thoughts. *Dryden*.

(1.) * MULTIPLIER. *n. ſ.* [from *multiply*.] 1. One who multiplies or increaſes the number of any thing.—Broils and quarrels are alone the great accumulators and *multipliers* of injuries. *Decay of Piety*. 2. The multiplicator in arithmetic.—Multiplication hath the multiplicand and the *multiplier*, or number given, by which the multiplicand is to be multiplied. *Cocker*.

(2.) MULTIPLIER. See ARITHMETIC, *Index*.

(1.) * *To* MULTIPLY. *v. a.* [*multiplier*, Fr. *multiplico*, Lat.] 1. To increaſe in number; to make more by generation, accumulation, or addition.—He clappeth his hands amongſt us, and *multiplieth* his words againſt God. *Job* xxxiv. 37.—He ſhall not *multiply* horſes. *Deut.* xvii. 16.—

But his growth now to youth's full flower
diſplaying

All virtue, grace, and wiſdom to atchieve
Things higheſt, greateſt, *multiplies* my fears.
Milton.

2. To perform the proceſs of arithmetical multiplication.—From one ſtock of 700 years, *multiplying* ſtill by 20, we ſhall find the product to be 1,347,368,420. *Brown.*

(2.) * *To* Multiply. *v. n.* 1. To grow in number.—The *multiplying* brood of the ungodly ſhall not thrive. *Wiſd.* iv. 3. 2. To increaſe themſelves.—

The *multiplying* villanies of nature
Do ſwarm upon him. *Shak.*

—We ſee the infinitely fruitful and productive power of this way of ſinning: how it can increaſe and *multiply* beyond all bounds and meaſures of actual commiſſion. *South.*

MULTIPLYING Glass, in optics, a glaſs wherewith objects appear increaſed in number. See Optics, *Index*.

* MULTIPOTENT. *adj.* [*multus* and *potens*, Lat.] Having manifold power; having power to do many different things.—

By Jove *multipotent*
Thou ſhould'ſt not bear from me a Greekiſh
member. *Shak.*

* MULTIPRESENCE. *n. ſ.* [*multus* and *præſentia*, Latin.] The power or act of being preſent in more places than one at the ſame time.—This ſleeveleſs tale of tranſubſtantiation was ſurely brought into the world, and upon the ſtage, by that other fable of the *multipreſcence* of Chriſt's body. *Hall.*

* MULTISCIOUS. *adj.* [*multiscious*, Lat.] Having variety of knowledge.

MULTISILIQUÆ. See Botany, *Ind.* & *Gloſſ.*

* MULTISILIQUOUS. *adj.* [*multus* and *ſiliqua*, Lat.] The ſame with corniculate: uſed of plants, whoſe ſeed is contained in many diſtinct ſeed-veſſels. *Bailey.*

* MULTISONOUS. *adj.* [*multiſonous*, Latin.] Having many ſounds. *Dict.*

* MULTITUDE. *n. ſ.* [*multitude*, Fr. *multitudo*, Latin.] 1. The ſtate of being many; the ſtate of being more than one. 2. Number collective; a ſum of many; more than one.—It is impoſſible that any *multitude* can be actually infinite, or ſo great that there cannot be a greater. *Hale.* 3. A great number, looſely and indefinitely.—It is a fault in a *multitude* of preachers, that they utterly neglect method in their harangues. *Watts.* 4. A crowd or throng; the vulgar.—

He the vaſt hiſſing *multitude* admires. *Addiſ.*

* MULTITUDINOUS. *adj.* [from *multitude*.] 1. Having the appearance of a multitude.—

Will all great Neptune's ocean waſh this
blood
Clean from my hand? No, this my hand will
rather
Thy *multitudinous* ſea incarnardine,
Making the green one red. *Shak. Macbeth.*

2. Manifold.—

At once pluck out
The *multitudinous* tongue; let them not lick
The ſweet that is in their poiſon. *Shak.*

* MULTIVAGANT. } *adj.* [*multivagus*, Lat.]
* MULTIVAGOUS. } That wanders or ſtrays much abroad. *Dict.*

* MULTIVIOUS. *adj.* [*multus* and *via*, Lat.] Having many ways; manifold. *Dict.*

* MULTOCULAR. *adj.* [*multus* and *oculus*, Lat.] Having more eyes than two.—Flies are *multocular*, having as many eyes as there are perforations in their corneæ. *Derham's Phyſico-Theology.*

MULTURE, *n. ſ.* in Scots law, a certain ſtipulated quantity of meal given as payment to the proprietor or tackſman of a mill for grinding the corn; and all corn ground on farms thirled to the mill is obliged to pay multure, whether the corn be ground at that mill or elſewhere. Multures, thirlages, and ſervices, are relics of ancient barbariſm univerſally complained of, as great bars to improvement, but as yet have been only partially aboliſhed or commuted. "The laws reſpecting multures and pigeon-houſes, (ſay the miniſters of Inverneſs, *Stat. Acc.* IX. 628.) are not founded in equity. They are palpably oppreſſive, and unworthy of even the ſtern ariſtocracy of thoſe ignorant and barbarous times in which they were enacted." See a vaſt deal more on this ſubject, with propoſals of amendments and commutations, in Sir J. Sinclair's *Stat. Acc. Index* I, art. *Multure.*

MULTZIG, a town of France, in the dep. of the Lower Rhine; 3 miles W. of Molſheim.

MULVIA, or Mulvya, a river of Barbary, which riſes in the mountains of Atlas, and divides the empire of Morocco from that of Algiers, and then falls into the Mediterranean, W. of Marſalquiver.

MULVIUS Pons. See Milvius, N°. 1.

MULUL, a river of Africa, which runs through Fez, and falls into the ſea, 45 miles SE. of Melilla.

MULVYA. See Mulvia.

(1.) * MUM. *interject.* [Of this word the ſuppoſed original is mentioned in MOME: it may be obſerved, that when it is pronounced it leaves the lips cloſed. *Mumme*, Daniſh, a maſk; whence *mummers* and *maſkers* are the ſame. *Upton.*] A word denoting prohibition to ſpeak, or reſolution not to ſpeak; ſilence; huſh.—

Ne ſigne of ſcence did ſhew, ne common wit,
As one with griefe and anguiſhe over-cum,
And unto every thing did aunſwere *mum*. *Spenſ.*

Mum then, and no more proceed. *Shakeſp.*

Well ſaid, maſter; *mum!* and gaze your fill.
Shak.

The citizens are *mum*, ſay not a word. *Shak.*

Intruſt it under ſolemn vows
Of *mum*, and ſilence, and the roſe. *Hudibras.*

(2.) * Mum. *n. ſ.* [*mumme*, German.] Ale brewed with wheat.—In Shenibank, upon the river Elbe, is a ſtorehouſe for the wheat of which *mum* is made at Brunſwick. *Mortimer.*—

Sedulous and ſtout
With bowls of fat'ning *mum*. *Philips.*

The clam'rous crowd is huſh'd with mugs of
mum,
Till all tun'd equal ſend a general hum. *Pope.*

(3.) Mum (§ 2.) is a kind of malt liquor much drank in Germany, and chiefly brought from Brunſwick, which is the place of moſt note for making it. The proceſs of brewing mum, as recorded in the town houſe of that city, is as follows. Take 63 gallons of water that has been boiled till one 3d part is conſumed, and brew it with ſeven buſhels of wheaten malt, one buſhel of oat-meal, and one buſhel of ground beans. When it is turned, the hogſhead muſt not be filled too full at firſt: as ſoon as it begins to work, put into it 3 lb. of the inner rind of fir, 1 lb. of the tops of fir and beech, 3 handfuls of carduus benedictus, a handful or two of the flower of roſa ſolis: add burnet, betony, marjoram, avens, pennyroyal, and wild thyme, of each an handful and an half; of elder-flowers, two handfuls or more; ſeeds of cardamum bruiſed, 30 oz. barberries bruiſed, 1 oz. when the liquor has worked a while, put the herbs and ſeeds into the veſſel; and after they are added, let it work over as little as poſſible; then fill it up: laſtly, when it is ſtopped, put into the hogſhead ten new-laid eggs unbroken: ſtop it up cloſe, and uſe it at two years end. The Engliſh brewers, inſtead of the inner rind of fir, uſe cardamum, ginger, and ſaſſafras; and alſo add elecampane, madder, and red ſanders.

(1.) * *To* MUMBLE. *v. n.* [*mompelen*, Dutch; *mutio*, Lat.] 1. To ſpeak inwardly; to grumble; to mutter; to ſpeak with imperfect ſound or articulation.—

He *mumbled* ſoft, but would not all his ſilence
break. *Spenſer's Fairy Queen.*
Peace, you *mumbling* fool;
Utter your gravity o'er a goſſip's bowl. *Shak.*
A wrinkled hag, with age grown double,
Picking dry ſticks, and *mumbling* to herſelf. *Otw.*

2. To chew; to bite ſoftly; to eat with the lips cloſe.—

The man, who laugh'd but once to ſee an aſs
Mumbling to make the croſs-grain'd thiſtles paſs,
Might laugh again to ſee a jury chaw
The prickles of unpalateable law. *Dryden.*

(2.) * *To* MUMBLE. *v. a.* 1. To utter with a low inarticulate voice.—

Some carrytale, ſome pleaſeman, ſome ſlight
zany,
Some *mumble*-news, told our intents before.
Shak.
Here ſtood he in the dark,
Mumbling of wicked charms, conj'ring the moon
To ſtand's auſpicious miſtreſs. *Shak. K. Lear.*
He with *mumbled* prayers atones the deity.
Dryden's Juv.

2. To mouth gently.—

Spaniels civilly delight
In *mumbling* of the game they dare not bite. *Pope.*

3. To ſlubber over; to ſuppreſs: to utter imperfectly.—The raiſing of my rabble is an exploit of conſequence; and not to be *mumbled* up in ſilence for all her pertneſs." *Dryden.*

* MUMBLER. *n. ſ.* [from *mumble.*] One that ſpeaks inarticulately; a mutterer.

*MUMBLINGLY. *adv.* [from *mumbling.*] With inarticulate utterance.

MUMIA. See PISSASPHALTUM.

* *To* MUMM. *v. a.* [*mumme*, Dan.] To maſk; to frolic in diſguiſe.—

The thriftleſs games
With *mumming* and with maſking all around.
Hubberd.

* MUMMER. *n. ſ.* [*mumme*, Dan.] A maſker; one who performs frolics in a perſonated dreſs. —If you chance to be pinch'd with the colic, you make faces like *mummers*. *Shak. Coriolanus.*

Jugglers and dancers, antics, *mummers*. *Milt.*

—I began to ſmoke that they were a parcel of *mummers*. *Addiſon.*—

Peel'd, patch'd and pyebald, linſey-woolſey
brothers;
Grave *mummers!* *Pope's Dunciad.*

* MUMMERY. *n. ſ.* [*momerie*, Fr.] Maſking; frolic in maſks; foolery. This is ſometimes written *mommery*.—

Here mirth's but *mummery*,
And ſorrows only real be. *Wotton.*

—This open day-light doth not ſhew the maſques and *mummeries*, and triumphs of the world, half ſo ſtately as candle-light. *Bacon's Nat. Hiſtory.*—

Your fathers
Diſdain'd the *mummery* of foreign ſtrollers.
Fenton.

MUMMIUS, Lucius, a Roman conſul ſent againſt the ACHÆANS, whom he conquered A. A. C. 147. He deſtroyed Corinth, Thebes, and Chalcis, by order of the ſenate, and obtained the ſurname of *Achaicus* from his victories. He did not enrich himſelf with the ſpoils of the enemy, but returned home without any increaſe of fortune. He was ſo ignorant of the value of the paintings and works of the moſt celebrated artiſts of Greece, which were found in the plunder of Corinth, that he ſaid to thoſe who conveyed them to Rome, that if they loſt them or injured them, they ſhould make others in their ſtead.

(1.) * MUMMY, *n. ſ.* [*mumie*, Fr. *mumia*, Lat. derived by *Salmaſius* from *amomum*, by *Bochart* from the Arabick.] 1. A dead body preſerved by the Egyptian art of embalming.—We have two ſubſtances for medicinal uſe under the name of *mummy*: one is the dried fleſh of human bodies embalmed with myrrh and ſpice; the other is the liquor running from ſuch *mummies* when newly prepared, or when affected by great heat, or by damps: this is ſometimes of a liquid, ſometimes of a ſolid form, as it is preſerved in vials, or ſuffered to dry: the firſt kind is brought in large pieces, of a friable texture, light and ſpungy, of a blackiſh brown colour, and often black and clammy on the ſurface; it is of a ſtrong but not agreeable ſmell: the 2d, in its liquid ſtate, is a thick, opake, and viſcous fluid, of a blackiſh and a ſtrong, but not diſagreeable ſmell: in its indurated ſtate it is a dry ſolid ſubſtance, of a fine ſhining black colour and cloſe texture, eaſily broken, and of a good ſmell: this ſort is extremely dear, and the firſt ſort ſo cheap, that we are not to imagine it to be the ancient Egyptian *mummy*. What our druggiſts are ſupplied with is the fleſh of any bodies the Jews can get, who fill them with the common bitumen ſo plentiful in that part of the world, and adding aloes, and ſome other cheap ingredients, ſend them to be baked in an oven till the juices are exhaled, and the embalming matter has penetrated. *Hill's Mat. Med.*—

The ſilk
Was dy'd in *mummy*, which the ſkilful
Conſerv'd of maidens hearts. *Shak. Othello.*

—It is ſtrange how long carcaſes have continued uncorrupt, as appeareth in the *mummies* of Egypt, having laſted ſome of them 3000 years. *Bacon.*—

Saved by ſpice, like *mummies*, many a year,
Old bodies of philoſophy appear. *Dunciad.*

2. *Mummy* is uſed among gardeners for a ſort of

wax, uſed in the planting and grafting of trees. *Chambers.* 3. *To beat to a* Mummy. To beat ſoundly. *Ainſworth.*

(2.) Mummy is alſo uſed for the compoſition with which dead bodies are embalmed. The 2d kind of mummies above mentioned, in Dr Johnson's quotation from *Hill*, are ſaid to be bodies taken out of the catacombs near Cairo, in which the Egyptians depoſited their dead after embalming. See Catacomb, § 2; and Embalming. They are very inflammable, and yield a ſcent of myrrh and aromatic ingredients while burning. This, *if we muſt have* medicines from *dead human bodies*, ought to be the mummy uſed; but it is very ſcarce. We cannot, however, ſuppoſe that any perſon breaks up the real Egyptian mummies, to ſell them in pieces to the druggiſts, as they make a much better market of them in Europe whole, as relics of antiquity. Mummy has been eſteemed reſolvent and balſamic; but whatever virtues have been attributed to it, ſeem to be ſuch as depend more upon the ingredients uſed in preparing the fleſh than in the fleſh itſelf; and it would ſurely be better to give thoſe ingredients without ſo ſhocking a cannibal-like addition. There are found in Poland a kind of natural mummies, or human bodies preſerved without art. Theſe lie in conſiderable numbers in ſome of the vaſt caverns in that country. They are dried with the fleſh and ſkin ſhrunk up almoſt cloſe to the bones, and are of a blackiſh colour. In the wars which ſeveral ages ago laid waſte that country, it was common for parties of the weaker ſide to retire into theſe caves, where their enemies, if they found them out, ſuffocated them by burning ſtraw, &c. at the mouth of the cavern, and then left the bodies; which, being out of the way of injuries from common accidents, have lain there ever ſince. Carcaſes dried by the heat of the ſun, and thus preſerved from putrefaction, are often found in the ſands of Libya. Some imagine, that theſe are the bodies of deceaſed people buried there on purpoſe to keep them entire without embalming; others think they are the carcaſes of travellers who have been overwhelmed by the clouds of ſand raiſed by the hurricanes frequent in thoſe deſarts.

(3.) Mummy, (§ 1, *def.* 2.) is made in the following manner: Take one pound of black pitch, and a quarter of a pound of turpentine; put them together in an earthen pot, and ſet them on fire in the open air, holding ſomething in your hand to cover and quench the mixture in time, which is to be alternately lighted and quenched till all the nitrous and volatile parts be evaporated. To this a little common wax is to be added; and the compoſition is then to be ſet by for uſe.

(4.) Mummy, mineral. See Pissaphaltum.

* *To* Mump. *v. a.* [*mompelen*, Dutch.] 1. To nibble; to bite quick; to chew with a continued motion.—

Let him not pry nor liſten,
Nor friſk about the houſe
Like a tame *mumping* ſquirrel with a bell on.
Otway.

2. To talk low and quick. 3. [In cant language.] To go a begging. *Ainſworth.*

* MUMPER. *n. ſ.* [In cant language.] A beggar.

(1.) * MUMPS. *n. ſ.* [*mompelen*, Dutch.] Sullenneſs; ſilent anger. *Skinner.*

(2.) * Mumps. *n. ſ.* The ſquinancy. *Ainſ.*

(3.) Mumps. See Medicine, *Index.*

MUNATIUS Plancus, a Roman conſul, who was ſent to the rebellious army of Germanicus, See Rome.

MUNCER, Thomas, a furious German anabaptiſt, who headed 40,000 men, and committed dreadful ravages; but was at laſt defeated by the Prince of Heſſe, taken priſoner and beheaded at Mulhauſen, in 1525.

(1.) * *To* MUNCH. *v. a.* [*manger*, French.] To chew by great mouthfuls. This is likewiſe written to *mounch*; ſee Mounch.—

Say, ſweet love, what thou deſir'ſt to eat?
—Truly, a peck of provender; I could *munch* your good dry oats. *Shak. Midſ. Night's Dream.*

(2.) * *To* Munch. *v. n.* To chew eagerly by great mouthfuls.—It is the ſon of a mare that's broken looſe, and *munching* upon the melons. *Dryden's Don Sebaſtian.*

MUNCHBERG, a town of Franconia in Culmbach, 6 miles S. of Hoff.

MUNGHENBERG, a town of Brandenburg, 19 miles W. of Cuſtrin, and 29 E. of Berlin.

MUNCHENSTEIN, a town and fort of the Helvetic republic, in Baſil. It has a paſs over Mount Jura.

* MUNCHER. *n. ſ.* [from *munch.*] One that munches.

MUNCH-HAUSIA, in botany, a genus of the polyandria order, belonging to the polyadelphia claſs of plants.

MUNCKER, Thomas, a learned German, who publiſhed, 1. Mythographi Latini: 2. Hyginus, with notes. He died in 1680.

(1.) * MUND. *n. ſ.* *Mund* is peace, from which our lawyers call a breach of the peace, *mundbreach:* ſo Eadmund is happy peace; Æthelmund, noble peace; Ælmund, all peace; with which theſe are much of the ſame import: Irenæus, Heſychius, Lenis, Pacatus, Sedatus, Tranquillus, &c. *Gibſon.*

(2.) Mund, or Island Mund, or the iſland of St Mungo, an iſland of Argyleſhire, in Loch Leven, in Glenco, which has been long the burial place of the inhabitants of Glenco.

(1.) MUNDA, an ancient city of Hiſpania Bœtica, in Granada, on the declivity of a hill, at the bottom of which runs a river. Lon. 4. 13. W. Lat. 48. 15. N. This city was anciently famous for a victory gained by Cæſar over the ſons of Pompey, who had collected an army in Spain, after the defeat of their father at Pharſalia. See Rome. The Pompeys poſted their army advantageouſly on a riſing ground, whereof one ſide was defended by Munda, and the other by a ſmall river and a marſh. Cæſar alſo drew up his troops with great art, and made as if he intended to fortify himſelf in that poſt; which induced young Pompey to advance into the plain, and attack the enemy before they could ſecure themſelves with any works. Pompey's army was moſt numerous; for it conſiſted of 13 legions, 6000 horſe, and an incredible number of auxiliaries, among whom were all the forces of Bocchus king of Mauritania, commanded by his two ſons, youths of great valour. Cæſar had 80 cohorts, three legions, and a body of 8000 horſe. As the enemy drew near, Cæſar ſeemed very anxious, knowing he was to engage men equal in valour and experience with himſelf, and commanded by officers who had given many proofs of their bravery. Cneius Pompeius was an able commander; and Labienus, who had revolted, eſteemed ſcarce inferior. Cæſar, however, deſirous to put an end to the civil war, either by his own death or that of his rivals, gave the ſignal for the battle, and fell upon the enemy with his uſual vigour and reſolution. At the firſt onſet, which was dreadful, the auxiliaries on both ſides fled. Then the legionaries engaged with a fury hardly to be expreſſed; Cæſar's men being encouraged by the hopes of putting an end to all their labours by this battle, and thoſe of the Pompeys exerting themſelves out of deſpair, expecting no quarter, moſt of them having been formerly pardoned. Never was victory more obſtinately diſputed. Cæſar's men, who had been always uſed to conquer, found themſelves ſo vigorouſly charged by the enemy's legionaries, that they began to give ground; and though they did not turn their backs, yet it was plain that ſhame alone kept them in their poſts. All authors agree, that Cæſar had never been in ſo great danger; and he himſelf, when he came back to his camp, told his friends, that he had often fought for victory, but this was the firſt time he had ever fought for life. The battle had laſted from the riſing to the ſetting of the ſun, with alternate temporary ſucceſs on each ſide, but without any conſiderable advantage on either; when at laſt a mere accident decided the diſpute in favour of the dictator. Bogud, a petty king of Mauritania, had joined Cæſar ſoon after his arrival in Spain, with ſome ſquadrons of Numidian horſe; but, in the very beginning of the battle, he had abandoned his poſt, and retired with his troops to a riſing ground near the enemy's camp, where he continued the whole day an idle ſpectator of the battle in the plain. But in the evening, he made an attack upon Pompey's camp, with all his forces. Labienus haſtened after him to defend the camp; which Cæſar obſerving, cried out, *Courage, fellow ſoldiers! the victory at length is ours; Labienus flies!* Cæſar's men, believing that Labienus had really fled, charged the wing he commanded ſo briſkly, that after a moſt obſtinate diſpute they put them to flight. Though the left wing was thus defeated, the right wing, under the elder Pompey, ſtill kept their ground. Pompey, diſmounting from his horſe, fought on foot, till moſt of his legionaries being killed, he was forced to ſave himſelf by flight. Part of his troops fled back to their camp, and part took ſhelter in Munda. The camp was immediately attacked, and taken; and Cæſar, without loſs of time, drew a line of circumvallation round the city. This victory was gained on the 16th of the kalends of April (our 17th of March), when the LIBERALIA were celebrated at Rome; the very day, Plutarch obſerves, in which Pompey the Great, 4 years before, had ſet out for the war. In this action the Pompeys loſt 30,000 men; among whom were Labienus; Attius Varus, and 3000 Roman knights: 17 officers were taken, and all the enemy's eagles and enſigns, with Pompey's faſces. On Cæſar's ſide only 1000 men were killed and 500 wounded.

(2.) MUNDA. See MONDA.

(1.) * MUNDANE. *adj.* [*mundanus*, Lat.] Belonging to the world.—The platonical hypotheſis of a *mundane* ſoul will relieve us. *Glanville.*—The atoms which now conſtitute heaven and earth, being once ſeparated in the *mundane* ſpace, could never, without God, by their mechanical affections, have convened into this preſent frame of things. *Bentley.*

(2.) MUNDANE EGG. See MYTHOLOGY.

* MUNDATION. *n.ſ.* [*mundus*, Latin.] The act of cleanſing.

* MUNDATORY. *adj.* [*mundus*, Latin.] Having the power to cleanſe.

MUNDELLA, a town of Indoſtan, in Gurry, 40 miles SE. of Gurrah, and 95 WNW. of Ruttunpour.

(1.) MUNDEN, or GEMUNDEN, a town of Lower Saxony, in Calenberg, at the junction of the Werra and Fulda, where they form the Weſer. It has 1 Calviniſt and 2 Lutheran churches. Various goods paſs through it by the Weſer. In 1626, it was taken by ſtorm by the Imperialiſts under Tully, and plundered of 350,000 rix dollars. In 1757 and 1758, it was in poſſeſſion of the French.

(2.) MUNDEN or MINDEN. See MINDEN, N° 2. Near this city, the allied army under Prince Ferdinand defeated the French under Marſhal Contades, in 1759. See ENGLAND, § 82.

MUNDER, a town of Lower Saxony, in Calenberg, on the Hammel. It withſtood a ſiege in 1483. It lies 18 miles ESE. of Munden.

MUNDERAR, a province of Aſia, in Cabul.

MUNDERKINGEN, a town of Suabia, on the Danube, 25 miles SW. of Ulm. Near it a battle was fought in 1703, between the French and Imperialiſts, wherein the latter loſt 1500 men. Lon. 9. 43. E. Lat. 48. 15. N.

(1.) * MUNDICK. *n.ſ.* A kind of marcaſite or ſemi-metal found in tin mines.—When any metals are in conſiderable quantity, theſe bodies loſe the name of marcaſites, and are called ores: in Cornwall and the Weſt they call them *mundick*. *Woodward.*—Beſides ſtones, all the ſorts of *mundick* are naturally figured. *Grew.*

(2.) MUNDICK or MARCASITE. See MARCASITE, METALLURGY, *Part* I. *Sect.* V; and PYRITES.

* MUNDIFICATION. [*mundus* and *facio*, Lat.] Cleanſing any body, as from droſs, or matter of inferior account to what is to be cleanſed. *Qnincy.*

* MUNDIFICATIVE, *adj.* [*mundus* and *facio*, Latin.] Cleanſing; having the power to cleanſe.—Gall is very *mundificative*, and was a proper medicine to clear the eyes of Tobit. *Brown.*—We incarned with an addition to the fore-mentioned *mundificative*. *Wiſeman.*

* *To* MUNDIFY. *v. a.* [*mundus* and *facio*, Lat.] To cleanſe; to make clean.—Simple wounds, ſuch as are *mundified* and kept clean, do not need any other hand but that of nature. *Brown.*—The ingredients actuate the ſpirits, abſorb the inteſtinal ſuperfluities, and *mundify* the blood. *Harvey.*

MUNDINGOES, a people who live on the ſides of the river Gembia in Africa, and who are of a jet black colour, ſtrong, and well made. They have a prieſt ſent over every year from one of the Cape de Verde Iſlands to chriſten and marry. Perhaps they are the ſame with the Mandingoes.

MUNDINUS, a celebrated anatomiſt of the 14th century, born in Florence. He was the firſt modern anatomiſt who reſtored the art, and introduced diſſection of human bodies. He wrote a Treatiſe on Anatomy, in 1315, which was printed at Paris in 1748. See Anatomy, *Index*.

* MUNDIVAGANT, *adj.* [*mundivagus*, Lat.] Wandering through the world. *Dict.*

MUNDSEE, a lake of Brandenburg.

MUNDU, a very ancient town of Indoſtan, in Malwa; formerly 22 miles in circuit; 425 miles E. of Bombay, Lon. 75. 97. E. Lat. 25. 50. N.

* MUNDUNGUS. *n. ſ.* Stinking tobacco. A cant word.—

Exhale *mundungus* ill perfuming ſcent. *Philips.*

MUNDUS Patens (*i. e.* the open world), in Roman antiquity, a ſolemnity performed in a ſmall form, of a round form like the world, dedicated to *Dis* and the reſt of the infernal gods. This temple was opened thrice a year, viz. on the 24th Aug. 4th Oct. and 7th Nov. During theſe days, the Romans believed hell was open; on theſe days, therefore, they never offered battle, liſted ſoldiers, put to ſea, or married.

* MUNERARY. *adj.* [from *manus*, Latin.] Having the nature of a gift.

MUNGALOVA, a town of Ruſſia in Irkutſk, at the junction of the Ona and Uda.

MUNGATS. See Munkats.

MUNGATZKOI, a town of Ruſſia, in Kolivan.

MUNGLORE, a town of Aſia, in Cabul.

(1.) MUNGO, St. See Kentigern.

(2.) Mungo, St, Island of. See Mund, N° 2.

(3, 4.) Mungo. See St Mungo.

(1.) * MUNGREL. *n. ſ.* [frequently written *mongrel*. See Mongrel.]—Any thing generated between different kinds; any thing partaking of different cauſes or parents.—

Maſtiff, greyhound, *mungrel* grim,
Or bobtail tike, or trundle-tail. *Shak.*

(2.) Mungrel. *adj.* Generated between different natures; baſe-born; degenerate.—Thou art the compoſition of a knave, beggar, coward, pander, and the ſon and heir of a *mungrel* bitch. *Shak.*—My people are grown half wild, they would not precipitate themſelves elſe into ſuch a *mungrel* war. *Howel.*—*Mungrel* curs bawl, ſnarle, and ſnap, where the fox flies before them, and clap their tails between their legs when an adverſary makes head againſt them. *L'Eſtrange.*—

A foreign ſon is ſought, and a mix'd *mungrel*
brood. *Dryden.*

MUNIA, or Menie, an ancient town of Egypt, on the Nile, 140 miles S. of Cairo. It has ſeveral moſques and many granite pillars. Lon. 21. 20. E. Lat. 27. 45. N.

(1.) MUNICH, a city of Germany, capital of Bavaria, and the reſidence of the elector, one of the moſt pleaſant and populous in Germany. The number of the inhabitants is about 40,000. Having been built at firſt on a ſpot of ground belonging to a convent, it had in German the name of *Munchen*, i. e. *Monk's-town*, and a monk for its arms. The elector's palace is a very good ſtructure, couſiſting of ſeveral courts, adorned with tapeſtry, gilding, ſculpture, ſtatues, and paintings. It contains an amazing collection of jewels, antiquities, and curioſities. The great half is 118 feet long and 52 broad; and the ſtair-caſe leading to it, from top to bottom, of marble and gold. In the hall of antiquities are 354 buſts and ſtatues of jaſper and porphyry, braſs and marble. In this place alſo is a library, containing a vaſt collection of books, and many valuable MSS. in moſt languages, ancient and modern; and a chamber of rarities, among which is the picture of a bravo or aſſaſſin, who is ſaid to have committed 345 murders with his own hand. The treaſury in the chapel contains alſo a vaſt number of pictures, precious ſtones, medals, veſſels of gold and ſilver, &c. Among other curioſities, there is a cherry ſtone, with 140 heads diſtinctly engraven upon it. The gardens of the palace are alſo very fine, and a ſecret paſſage leads from it to all the churches and convents. There are many other fine buildings, the riding-houſe, town-houſe, opera-room, the Jeſuits college, the large edifice for tournaments, the churches, convents, fountains, &c. Its manufactures are of ſilk, velvet, woollen cloths, and tapeſtry; and it has two annual fairs. The ſtreets are broad and regular; and moſt of the houſes well built, and painted on the outſide. The market-place is beautiful. Munich is ſeated on the Iſer, 15 miles SE. of Augſburgh, or 27 according to Mr Cruttwell, 62 S. of Ratiſbon, and 200 W. of Vienna. Lon. 11. 36. Lat. 48. 6. N.

(2.) Munich, Burchard Chriſtopher, count of, a famous field marſhal in the Roſſian ſervice, born at Oldenburgh, in 1685. He was the favourite of the empreſs Ann, and was concerned in all the events of her reign. Being appointed general of her armies, he gained great advantages over the Crim Tartars, beat the Turks, A. D. 1739, in an engagement near Choczim, and took that city, with Jaſſi the capital of Moldavia. He was afterwards prime miniſter to John VI. but was ſoon after accuſed of employing his power, to gratify his own ambition and reſentment. The empreſs Eliſabeth brought him to trial, and he was condemned to loſe his life A.D. 1742. This ſentence was mitigated to baniſhment into Siberia, whither many of the victims of his power had been exiled. He was recalled by Peter III. A. D. 1761, and declared field-marſhal. Upon the death of this prince, Catherine II. appointed him director-general of the ports of the Baltic. He died on the 8th Oct. 1767, aged 84.

(1.) MUNICIPAL. *adj.* [*municipal*, Fr. *municipalis*, *municipium*, Latin.] Belonging to a corporation.—A counſellor, bred up in the knowledge of the *municipal* and ſtatute laws, may honeſtly inform a juſt prince how far his prerogative extends. *Dryden.*

(2.) Municipal, in the Roman civil law, ſignifies inveſted with the rights and privilegs of Roman citizens. See Municipium.

(3.) Municipal Law, in England, laws that obtain in any particular city or province.

(4.) Municipal officers, officers elected to defend the intereſt of cities to maintain their rights and privileges, and to preſerve order and harmony among the citizens; ſuch as mayors, ſheriffs, conſuls, &c.

MUNICIPALITY. *n. ſ.* the right of a citizen; a corporation or borough enjoying ſuch rights. See Municipium.

MUNICIPES, an appellation given by the Romans to the inhabitants of the *municipia*, or municipal cities. See Municipium.

MUNICIPIUM, in Roman antiquity, a corporation, borough, or enfranchiſed city or town, where the inhabitants enjoyed their own laws and cuſtoms, and at the ſame time were honoured with the privileges of Roman citizens; but then this privilege reached no farther than the bare title. Some, indeed, by particular merit, obtained the liberty of votes, which occaſioned that diſtinction of *municipium ſine ſuffragio*, and *municipium cum ſuffragio*.—The inhabitants of the municipium *ſine ſuffragio* were called barely *Romani;* but thoſe of the *municipium cum ſuffragio* were called *cives Romani*. The proper citizens of Rome, were, 1. Regiſtered in the cenſus; 2. Had the right of ſuffrage and of bearing honours; 3. Were aſſeſſed in the poll-tax; 4. Served in the legions; 5. Uſed the Roman laws and religion; 6. Were called *Quirites* and *populus Romanus;* whereas the municipes enjoyed the three firſt of theſe privileges, but were denied the three laſt.

* MUNIFICENCE. *n. ſ.* [*munificence*, French; *munificentia*, Lat.] 1. Liberality; the art of giving. —A ſtate of poverty obſcures all the virtues of liberality and *munificence*. *Addiſon*. 2. In Spenſer it is uſed, as it ſeems, for fortification or ſtrength, from *munitiones facere*.—

Locrine for his realms defence,
Did head againſt them make, and ſtrong *munificence*. *Spenſer*.

* MUNIFICENT. *adj.* [*munificus*, Lat.] Liberal; generous.—Is he not our moſt *munificent* benefactor, our wiſeſt counſellor and moſt potent protector. *Atterbury*.

* MUNIFICENTLY. *adv.* [from *munificent*.] Liberally; generouſly.

MUNILLA, a town of Spain, in Old Caſtile.

* MUNIMENT. *n. ſ.* [*munimentum*, Lat.] 1. Fortification; ſtrong hold. 2. Support; defence.

Our ſteed the leg, the tongue our trumpeter;
With other *muniments* and petty helps
In this our fabrick. *Shak. Coriolanus*.

3. Record; writing upon which claims and rights are founded.

* *To* MUNITE. *v. a.* [*munio*, Lat.] To fortify; to ſtrengthen. A word not in uſe.—Heat doth attenuate, and the more groſs and tangible parts contract, both to avoid vacuum, and to *munite* themſelves againſt the force of the fire. *Bacon's Nat. Hiſt.*—Men, in the procuring or *muniting* of religious unity, muſt not diſſolve the laws of charity and human ſociety. *Bacon*.

(1.) * MUNITION. *n. ſ.* [*munition*, Fr. *munitio*, Lat. 1. Fortification; ſtrong hold.—Victors under-pin their acqueſts jure belli, that they might not be loſt by the continuation of external forces of ſtanding armies, caſtles, garriſons, *munitions*. *Hale*. 2. Ammunition; materials for war.

What penny hath Rome borne,
What men provided, what *munition* ſent,
To underprop this action? *Shak. King John*.
The king of Tripoli in every hold
Shut up his men, *munition* and his treaſure. *Fairf*.

—It is a city, ſtrong and well ſtored with *munition*. *Sandys*.

(2.) Munition (§ 1. *def.* 2.), is the proviſions with which a place is furniſhed for defence; or that which follows a camp for its ſubſiſtence.

(3.) Munition ships, are thoſe that have ſtores on board to ſupply a fleet of men of war at ſea. In an engagement, all the munition ſhips and victuallers attending the fleet take their ſtation in the rear of all the reſt: they are not to engage in the fight, but to attend to ſuch directions as are ſent them by the admiral.

MUNKACS, } or Mungats, a town, lordſhip, and biſhops ſee of Hungary, with an impregnable caſtle, ſeated on a high rock, in a ſpacious plain; 50 miles NE. of Tokay. Lon. 22. 0. E. Lat. 48. 30. N.
MUNKATS, }

MUNKENGRATZ, a town of Bohemia.

MUNKHOLM, a town of Norway.

MUNKTORP, a town of Sweden.

MUNNERSTADT, a town of Franconia.

MUNNICKS, John, profeſſor of anatomy, botany and medicine, at Utrecht, was born in 1652. He publiſhed ſeveral works on medical and anatomical ſubjects. He died in 1711, aged 59.

* MUNNION. *n. ſ.* The upright poſts that divide the ſeveral lights in a window frame, are called *munnions*. *Moxon*.

MUNNYPOUR, a town of Aſia, in Meckley.

(1.) MUNRO, Donald, an eminent writer of the 16th century, cotemporary with George Buchannan, and a deſcendant of the family of Coul. He was firſt archdeacon of the Iſles, afterwards ſuperintendant of Roſs, and miniſter of Kiltearn. He wrote a Deſcription of the Iſles, which he gave to Buchannan, who acknowledges it in his Hiſtory of Scotland.

(2.) Munro, Sir Robert, of Fowlis, Bart. a brave Scottiſh officer, who was killed at the battle of Falkirk, Jan. 17th 1746. "There are ſtill (ſays the rev. H. Robertſon) many living witneſſes how great an ornament he was to his country. His conduct at the battle of Fontenoy was heard with juſt applauſe through all Britain; and there is extant a letter from the Elector Palatine, deſiring the envoy to thank the King of Great Britain for the excellent behaviour of the Highland regiment, while they were in his territories, "which (he ſaid) was owing to the care of Sir Rob. Munro, their lieut.-colonel; for whoſe ſake he ſhould always regard a Scotſman." *Stat. Acc.* I. 297.

(3.) Munro, Sir Harry, Bart. ſon of the preceding, was a ſcholar of the firſt rank, and an uncommon proficient in claſſical learning. He ſtudied at Weſtminſter and Leyden. He wrote a large critical work upon Buchanan's Pſalms, which he ſubmitted to the review of the learned Thos. Ruddiman, who expreſſed the higheſt approbation of it. He died at Edinburgh, June 12th 1782.

(4.) Munro, Hugh, ſurgeon, a native of Fer-intoſh in Roſs-ſhire. He ſtudied anatomy, ſurgery, medicine, and pharmacy, at Edinburgh, where he paſſed his trials as ſurgeon, in 1790. He afterwards went to London, in 1792; and thence to Jamaica, where he died in 1794, aged about 29. He publiſhed *A New Syſtem of Surgery*, Edin. 1791, 8vo. and *The Reſtorer of Health*; Lond. 1792, 8vo.

MUNRY, a river of Ireland, in Mayo.

MUNSEKIRCHEN, a town of France, in the dep. of the Moſelle, 12 miles E. of Thionville.

MUNSHOLM, an iſland of Denmark.

MUNSINGEN, a town of Wurtemberg.

(1.) MUNSTER, Sebaſtian, a learned German writer, born at Ingleheim, in 1489. He became a Cordelier, but having embraced Luther's ſentiments, he quitted that order in 1529, and retired to Heidelberg, and afterwards to Baſil, where he became profeſſor of Hebrew, and taught with reputation. He was a man of great candour, void of ambition; and ſo well ſkilled in geography, mathematics, and the Hebrew, that he was called the *Eſdras* and the *Strabo of Germany*. His Latin tranſlation of the Bible is eſteemed. He was the firſt who wrote a Chaldee grammar and lexicon; he alſo publiſhed a treatiſe on coſmography, and ſeveral other works. He died of the plague at Baſil in 1552, aged 63.

(2.) MUNSTER, in Latin MONOMIA, and in Iriſh *Moun*, the moſt ſoutherly province of Ireland; bounded on the N. by Leinſter and Connaught, and on the E. W. and S. by the ocean. It contains the counties of Cork, Clare, Kerry, Limerick, Tipperary, and Waterford; 3,289,632 Iriſh plantation acres, 740 pariſhes, 63 baronies, and 26 boroughs. It is about 125 miles long, and 120 broad. Cork is the capital. Its ancient name was *Mumban*; and in latter ages it was divided into *Deſmond*, or S. Munſter; *Ormond*, or E. Munſter; and *Thomond*, or N. Munſter. It lies between 51. 15. and 53. 0. Lat. N. and 7. 10. to 10. 40. Lon. W.

(3.) MUNSTER, a territory of Germany, in the circle of Weſtphalia; bounded on the N. by Embden and Oldenburg, on the S. by the county of Mark and duchy of Weſtphalia, on the W. by the county of Bentheim and Batavia, and on the E. by the biſhoprics of Oſnaburg and Paderborn, together with the county of Ravenſberg. It is in length about 80 miles, and in breadth from 20 to 60. It is divided into 13 bailiwicks; and though in general but a barren country, has ſome fruitful plains, with woods, and quarries of ſtone. The inhabitants, excepting a few of the nobility and gentry, are all Roman Catholics; though Lutheraniſm had once a conſiderable footing here. It was a biſhopric, but was ſeculariſed in 1802, and part of it given to the houſe of Aremberg.

(4.) MUNSTER, a city of Germany, capital of the above territory, and of all Weſtphalia; ſeated at the conflux of the river Aa with the Ems. It is of a circular form, large, and well fortified both by nature and art. It has a fine citadel called the *Brille*, erected by a biſhop named *Bernard van Galen* to awe the burghers. The dean and chapter now elect the biſhop; but, till the beginning of the 13th century, he was nominated by the emperor. This city has been rendered famous, 1. By the peace concluded here in 1648, which put an end to a war of 30 years, occaſioned by the perſecuting ſpirit of bigotted papiſts, who choſe rather to plunge their country into all the calamities of war, than allow liberty of conſcience to the Proteſtants. By this peace, however, they conſented, much againſt their inclination, to grant them a toleration. 2. By the diſorders and diſturbances occaſioned here in 1553, by a parcel of enthuſiaſts, headed by a tailor called *John of Leyden*, from the place of his birth, who turned out the magiſtrates, and took poſſeſſion of the city, where they perpetrated the moſt horrid villanies and cruelties. 3. For the noble, though unſucceſsful, efforts it made in defence of its liberties againſt the tyranny and uſurpation of the above mentioned turbulent and bloody-minded biſhop, Bernard van Galen. In this city are many convents and other religious houſes, ſtately piles, and ſurrounded with beautiful gardens. It lies 70 miles N. by E. of Cologn, 77 S. by W. of Bremen, and 77 NW. of Caſſel. Lon. 7. 49. E, Lat. 5. 49. N.

(5.) MUNSTER, a town of France, in the dep. of the Upper Rhine, 9 miles WSW. of Colmar. It was taken by Count Montecuculi, in 1633; and ſoon after by the Swedes, who reſtored it to the French.

(6.) MUNSTER, a town of Germany, in the Rhingrave, now included in the French empire and dep. of Mont Tonnere; one mile SW. of Creutznach.

(7.) MUNSTER, a town of Germany in Heſſe.

(8.) MUNSTER, a town of Switzerland, in the country of the Griſons, in Munſterthal; 15 miles N. of Bormio.

(9.) MUNSTER, a town of Switzerland, in Lucerne; 12 miles NNW. of Lucerne.

(10.) MUNSTER, a town of Germany, in Tirol.

(11.) MUNSTER, Thomas. See MUNCER.

(12.) MUNSTER BILSEN, a town of France, in the dep. of the Ourte, and late biſhopric of Liege; one mile N. of Bilſen.

(13.) MUNSTER EIFFEL, a town of France, in the dep. of the Roer, and ci-devant duchy of Juliers; 34 miles WNW. of Coblentz.

(14.) MUNSTER MEINFELD, a town of France, in the dep. of the Rhine and Moſelle, and late archbiſhopric of Treves; 11 miles WSW. of Coblentz, and 42 NE. of Treves.

(1.) MUNSTERBERG, a principality of Sileſia, ſurrounded by thoſe of Schweidnitz, Brieg, Neiſſe and Glatz; fertile in grain, flax, hemp, and wood.

(2.) MUNSTERBERG, the capital of the above principality, is ſeated on the Ohlau, 15 miles WSW. of Neiſſe, and 19 SW. of Glatz.

MUNSTERDORF, a town of Holſtein.

MUNSTERLINGEN, a town of Switzerland, in Turgau, 5 miles SE. of Conſtance.

MUNSTERLONEY, mountains in Ireland, in Tyrone, 10 miles S.E. of Strabane.

MUNSTERTHAL, a valley of Switzerland, in the Griſon's country, in the League of God's Houſe.

MUNTJAC. See CERVUS, Nº I, § ix.

MUNTING, Abraham, an eminent botaniſt, who publiſhed *Phitographia Curioſa*, at Amſterdam, in 1627; and other works. He died in 1683.

MUNTINGIA, in botany, a genus of the Monogynia order, belonging to the Polyandrclaſs of plants; and, in the natural method, ranking under the 37th order, *Columniferæ*.

(1.) **MUNYCHIA**, or Munychius Portus, in ancient geography, a village and port of Athens, nearer to the city, leſs than, and fortified in the ſame manner with the Piræus, E. of which it lay, between it and the promontory Sunium, at the mouth of the Iliſſus. Strabo ſays it was an eminence in form of a peninſula, at the foot of which ſtood three harbours, anciently encompaſſed with a wall, taking within its extent the Piræus and other harbours, full of docks, with the temple of Diana Munychia; taking its name from Munychus, the founder of the temple.

(2.) Munychia, an anniverſary ſolemnly obſerved at Athens, in honour of Diana, on the 16th of the month Munychion. Cakes were offered on the occaſion called αμφιφωντες.

MUNYCHION, the tenth month of the Athenian year, containing 29 days, and anſwering to the latter part of our March and the beginning of April. It was ſo called from the feſtival Munychia, which was obſerved in this month. See Month and Munychia, § 2.

MUNZENBURG, a town of Germany, in Hanau; 17 miles N. of Hanau, and 19 SE. of Wetzlar.

MUODGUR, a town of Indoſtan, in the circar of Cicacole; 18 miles NNW. of Ganjam.

MUFTI. See Mufti.

(1.) **MUR**, a town of France, in the dep. of the North coaſts; 9 miles W. of Loudeac, and 22 S. of Guingamp.

(2.) Mur de Barres, a town of France, in the dep. of Aveiron, 30 miles N. of Rhodez.

MURACH, a town and fort of Bavaria.

MURADAL, a paſs of Spain, in the Morena Mountains, between New Caſtile and Andaluſia, where the Spaniards defeated the Moors, in 1202.

MURÆNA, the Eel, in ichthyology; a genus of fiſhes, belonging to the order of apodes. The head is ſmooth; there are ten rays in the membrane of the gills; the eyes are covered with a common ſkin; and the body is cylindrical and ſlimy. There are 7 ſpecies, diſtinguiſhed by their fins, tails, &c. The moſt remarkable are theſe:

1. Muræna anguila, the common eel, is very frequent in all our freſh waters, ponds, ditches, and rivers: according to Mr Pennant, it is the moſt univerſal of fiſh; yet is ſcarce ever found in the Danube, though very common in the lakes and rivers of Upper Auſtria. In ſome reſpects it borders on the reptile tribe. It quits its element, and during night wanders along the meadows, not only in order to change its habitation, but alſo for the ſake of prey, feeding on ſnails as it paſſes along. In winter it beds itſelf deep in the mud, and continues in a ſtate like the ſerpent kind. It is very impatient of cold, and will eagerly take ſhelter in a wiſp of ſtraw flung into a pond in ſevere weather, which has ſometimes been practiſed as a method of taking them. Albertus affirms, that he has known eels take ſhelter in a hay-rick, yet periſh through exceſs of cold. In a river of England called the Nyne, there is a variety of ſmall eel, with a leſſer head and narrower mouth than the common kind, found in cluſters in the bottom of the river, and called the *bed-eel*: theſe are ſometimes rouſed up by the violent floods, and are never found at that time with meat in their ſtomachs. Eels are extremely voracious, and deſtructive to the fry of others. No fiſh lives ſo long out of water as the eel; it is ſo extremely tenacious of life, that its parts will move a conſiderable time after they are flayed and cut in pieces. Eels vary much in their colours, from a ſooty hue to a light olive green; and thoſe which are called *ſilver eels* have their bellies white, and a remarkable clearneſs throughout. There is a variety in the Thames called *grigs*, and about Oxford *grigs* or *gluts*. Theſe are ſcarce ever ſeen near Oxford in the winter; but appear in ſpring, and bite readily at the hook, which common eels in the neighbourhood will not. They have a larger head, a blunter noſe, thicker ſkin, and are leſs fat, than the common ſort; they are leſs eſteemed, and ſeldom exceed 3 or 4 lb. in weight.—Common eels grow to a large ſize, ſometimes weighing 15 or 20 lb. but ſuch are extremely rare. Mr Dale in the *Philoſ. Tranſ.* and ſome others, bring inſtances of eels much exceeding that ſize; but Mr Pennant ſuſpects them to have been congers, as theſe enormous fiſh were all taken at the mouths of the Thames or Medway. The Romans held eels very cheap, but the luxurious Sybarites were ſo fond of them, as to exempt from tribute thoſe who ſold them. There is ſcarce any animal, the generation of which has puzzled the learned more than this. Ariſtotle firſt broached an opinion that eels were of no ſex, nor propagated their ſpecies like other animals, but were equivocally gendered of the mud; and abſurd as this hypotheſis is, there have not been wanting many, even in theſe enlightened times, who have adopted it. But there is now no room to doubt that all animals are produced by the copulation of parents like themſelves; and the finding of eels in new ponds is eaſily accounted for, from the above mentioned circumſtance of their nocturnal migrations. Dr Plot, and many others, have given accounts of whole droves of them leaving one ditch or pond to go to another. Though naturaliſts now generally allow that eels are produced like other animals, by parents of their own kind, yet there remain many doubts about the manner in which the generation is performed. Some allow the eels to be, like the generality of other animals, of different ſexes in the different individuals; and others affirm that they are all hermaphrodites, each having the parts of both ſexes. Rondeletius affirms that they are of both ſexes; and Mr Allan, who has given a very curious paper concerning them in the *Phil. Tranſ.* is of the ſame opinion. Both ſay, that the parts of the ſexes may be diſcovered on a careful inſpection; and ſome are found to be males, and others females; but theſe parts are, in both ſexes, they ſay, buried in a large quantity of fat; and hence, they think, proceeded the miſtake of Ariſtotle and his followers, who, not being able to find thoſe parts, concluded that they did not exiſt. Among thoſe who allow the eel to be produced, like other animals, from parents which have the ſexes, ſome are of opinion that they are viviparous, and others that they are oviparous: but Mr Chartwynd ſeems to have determined this controverſy by obſerving,

that if the aperture under the belly of the eel, which looks red in May, be cut open at that time, the young eels will be ſeen to come forth alive after the operation. Mr Lewenhoeck ſays, that he found an uterus in every eel he examined; and therefore concludes, that they are hermaphrodites: and he ſuppoſes that they have no male parts of generation like thoſe of other animals; but that the office of theſe is performed by a liquor analogous to the male ſeed of animals, which is contained in certain glands, ſituated in the inſide of the uterus itſelf. Eels have ſometimes been met with in recent ponds, made at ſuch a diſtance from any other water that we cannot reaſonably ſuppoſe them to have migrated thither over land. But in theſe caſes, it is probable that the ponds have been ſupplied with them by acquatic fowls of prey, as vegetation is ſpread by many land birds, either by being dropped, as they carry them to feed their young, or by paſſing quick through their bodies, as is the caſe with herons.

2. **Muræna conger**, the conger eel, grows to a vaſt ſize. Dr Borlaſe informs us, that they are ſometimes taken near Mount's Bay of 100 lb. weight; and Mr Pennant aſſures us, that he has heard of ſome taken near Scarborough, that were 10½ feet long, and 18 inches in circumference in the thickeſt part. They differ from the common eel in the following particulars: 1. Their colour in general is more dark. 2. Their eyes much larger in proportion. 3. The irides of a bright ſilvery colour 4. The lower jaw is rather ſhorter than the upper. 5. The inſide line is broad, whitiſh, and marked with a row of ſmall ſpots. 6. The edges of the dorſal and anal fins are black. 7. They have more bones than the common eel, eſpecially along the back quite to the head. 8. They grow to a much larger ſize. Congers are extremely voracious, preying on other fiſh, and on crabs at the time they have loſt their ſhell and are in a ſoft ſtate. They and eels in general are alſo fond of carcaſes of any kind, being frequently found lodged in ſuch as are accidentally taken up. The conger eel probably generate like the freſh-water ſpecies. Innumerable quantities of what are ſuppoſed to be their fry come up the Sever about April, preceding the ſhads, which it is conjectured migrate into that river to feed on them; they are called *elvers*. They ſwarm during their ſeaſon, and are taken in a kind of ſieve made of hair-cloth fixed to a long pole; the fiſherman ſtanding on the edge of the water during the tide, puts in his net as far as he can reach, and drawing it out again, takes multitudes at every ſweep, and will take as many during one tide as will fill a buſhel. They are dreſſed, and reckoned very delicate. They are an article of commerce in Cornwall; numbers taken on that coaſt, and exported to Spain and Portugal, particularly to Barcelona.—Some are taken by a ſingle hook and line; but as that method is tedious, they are chiefly caught by bulters. (See Bulter, § 2.) The fiſhermen are much afraid of a large conger, leſt it ſhould endanger their legs by clinging round them; they therefore kill them quickly by ſtriking them on the navel. They are afterwards cured in this manner; They are ſlit, and hung on a frame till they dry, having a conſiderable quantity of fat, which it is neceſſary ſhould exſude before they are fit for uſe, A conger of 100 weight will be reduced by drying to 24 lb. The ſmalleſt are therefore preferred, becauſe they are ſooneſt cured. The Portugueſe and Spaniards uſe thoſe dried congers after they have been ground into a powder, to thicken and give a reliſh to their ſoups. They are ſold for about 40s. the quintal, which weighs 126 lb. A fiſhery of congers, ſays Mr Pennant, would be of great advantage to the inhabitants of the Hebrides. Perhaps they would at firſt undertake it with repugnancy, from their abſurd averſion to the eel kind.

3. **Muræna siren**, the **Mud Iguana**, a ſingular animal, firſt obſerved by Dr Garden of Charleſton, and afterwards deſcribed by Mr Ellis in the *Philo Tranſ.* for 1766. It has gills, fins, and two feet: and is in length from 31 to 40 inches. (See *Pl.* CCXXIV. *fig.* 8.) They inhabit S. Carolina, where they are found in ſwampy and muddy places, by the ſides of pools, and under the trunks of old trees that hang over the water. They feed on ſerpents. The feet appear like little arms and hands, each furniſhed with 4 fingers, and each finger with a claw. "The head is ſomething like an eel, but more compreſſed; the eyes are ſmall, and placed as thoſe of the eel are. This ſmallneſs of the eye beſt ſuits an animal that lives ſo much in mud. The noſtrils are very plainly to be diſtinguiſhed; theſe, with the gills, and remarkable length of the lungs, ſhow it to be a true amphibious animal.—The mouth is ſmall in proportion to the length of the body; but its palate and inſide of the lower jaw are well provided with many rows of pointed teeth: with this, added to the ſharp exterior bony edges of both the upper and under jaw, the animal ſeems capable of biting and grinding the hardeſt kind of food. The ſkin, which is black and full of ſmall ſcales, reſembles ſhagreen. Theſe ſcales are of different ſizes and ſhapes, according to their ſituation; but all appear ſunk in its gelatinous ſurface: thoſe along the back and belly are of an oblong oval form, and cloſe ſet together; and in other parts they are round and more diſtinct. Both the parts are mottled with ſmall white ſpots, and have two diſtinct lines compoſed of ſmall white ſtreaks continued along from the feet to the tail. The fin of the tail has no rays, and is no more than an adipoſe membrane like that of the eel." Dr Garden, in a letter to Mr Ellis, mentions a remarkable property of this animal, viz. that his ſervant endeavouring to kill one of them by daſhing it againſt the ſtones, it broke into 3 or 4 pieces. Linnæus, from the deſcriptions ſent him, made it a new genus named *Siren*, of a new order *Meantes*, of the claſs amphibia. But from this claſs both the order *Meantes* and that of *Nantes* have been lately expunged; and Gmelin has reduced the Siren to a ſpecies of Muræna. Its place here, however, ſeems ſtill of doubtful propriety; as Gmelin himſelf acknowledges in the Preface to his edition of the Syſtema Naturæ. For Campfer, having diſſected the Siren, diſcovered, that on each ſide of the head it is furniſhed with three true gills, ſeparated from each other by membranes having tooth-like appendages; that the mouth is armed with ſtrong and firmly planted teeth; that the

heart has only one ventricle; and that the abdomen is filled with very long and capacious inteſtines: From all theſe circumſtances, he concludes, that this animal ought to be conſidered as a fiſh of the order of *Branchioſtegi*;—While in other reſpects it is more nearly allied to the genus *Muræna*, of the order *Apodes*; although it differs materially from the other ſpecies of that genus, by having only three notched bones in the gills, and from the pectoral fins being each divided into four finger-like appendages.

* MURAGE. *n. ſ.* [from *murus*, Latin.] Money paid to keep walls in repair.

MURAKWA, a town of Poland in Braclaw.

(1.) * MURAL. *adj.* [*muralis*, *murus*, Latin.] Pertaining to a wall.—

And repair'd
Her *mural* breach, returning whence it rowl'd.
Milton.

—In the nectarine and the like delicate *mural* fruit, the later your pruning, the better. *Evelyn.* —A ſoldier would venture his life for a *mural* crown. *Addiſon.*

(2.) Mural Arch, a wall, or walled arch, placed exactly in the plane of the meridian, *i. e.* upon the meridian line, for fixing a large Quadrant, ſextant, or other inſtrument, to obſerve the meridian altitudes, &c. of the heavenly bodies.

(3.) Mural Crown. See Crown, § VI, iii. 6.

(4.) Mural Quadrant. See § 2. Tycho Brahe was the firſt who uſed a mural quadrant in his obſervations; after him Hevelius, Mr Flamſtead, De la Hire, &c. uſed it. See Astronomy, *Index*.

MURALT, M. De, a native of Switzerland, who travelled through a great part of Europe, and publiſhed *Lettres ſur les François et ſur les Anglois*, 12mo, 2 vols. 1726; which met with great ſucceſs, and ſome other works which are below mediocrity. He died about 1750.

(1.) MURANO, an iſland in the Gulf and ci-devant Dogado of Venice, 4 miles N. of Venice; containing 20,000 inhabitants. The iſlands of St Eraſmo, (which contains about 90 ſouls,) and Vignole, are comprended in its podeſtaria or diſtrict.

(2.) Murano, a very ancient town in the above iſland, about 3 Italian miles in circumference, famous for its manufactures of looking-glaſſes, in which it formerly ſerved all Europe, and which are blown like bottles, not caſt as in England, and employ about 1000 perſons. It contains 4 pariſhes, 11 churches, ornamented with fine paintings and moſaic work, 7 monaſteries, ſeveral magnificent palaces, and about 10,000 inhabitants. This town is built among lakes and interſected by canals. Lon. 12. 5. E. Lat. 45. 16. N.

MURANT, Emanuel, a much admired landſcape painter, born at Amſterdam in 1622. He was a diſciple of Philip Wouverman, from whom he acquired that warmth and brilliancy of colouring, which rendered him eminent. His ſubjects were views in Holland, villages, towns, cities, ruins, and decayed caſtles; all ſketched after nature, and ſo exquiſitely finiſhed, that every minute part of a building was perfectly diſcernible, and even every particular ſtone or brick might be counted. But this demanded ſo much time, that it was impoſſible for him to paint many pictures; on which account they are exceedingly ſcarce, and ſold for extravagant prices. He died in 1700.

MURANUM, in ancient geography, a town of Italy, on the confines of Lucania; now called Morano; a citadel in Calabria Citra, at the ſprings of the Sybaris, midway between the Sinus Tarentinus on the E. and the Tuſcan ſea on the W. It is ſuppoſed to have ariſen from the ruins of Sypæum.

MURANNY, a fortreſs of Hungary.

MURARUT, a mountain of Tranſylvania.

MURASSON, a town of France, in the dep. of the Aveiron, 30 miles ESE. of Albin.

(1.) MURAT, a town of France, in the department of the Tarn, 9 miles E. of Caune.

(2.) Murat, a town of France, in the department of Cantal, 21 miles NE. of Aurillac.

MURATORI, Lewis Anthony, F. R. S. a celebrated Italian writer, born at Vignoles, in Bologna, in 1672. He early diſcovered a fondneſs for the languages and ſciences. Having completed his firſt ſtudies, he became an eccleſiaſtic; but devoted his time to literature, philoſophy, theology, civil law, antiquities, &c. In 1694, he was made librarian of the Ambroſian library at Milan: and in 1700 the D. of Modena made him his librarian, keeper of the Archives, and provoſt of Santa Maria del Pompoſa. He acquired the eſteem of the learned throughout Europe, and became an aſſociate of the Academies of the Arcades of Rome, Della Cruſca, and Colomberia of Florence, of Etruſca at Cortona, of the Imperial Academy of Olmutz, and F. R. S. of London. He died in 1750. He wrote, 1. *Anecdota*, or a collection of pieces from the Ambroſian library, 2 vols 4to, with notes. 2. A treatiſe on the Italian poetry, 2 vols 4to. 3. *Anecdota Græca*, 3 vols 4to. 4. A genealogical hiſtory of the houſe of Modena, 2 vols folio. 5. A collection of the writers of the Italian hiſtory, 27 vols folio, with learned notes. 6. *Antiquitates Italicæ*. 7. A collection of ancient inſcriptions, entitled *Novus Theſaurus*; 6 vols folio. 8. The annals of Italy, 12 vols 4to, In Italian, &c. 9. Letters, diſſertations, Italian poems, &c.

MURCA de Paneya, a town of Portugal, in Tras Los Montes; 12 miles SW. of Mirandola.

(1.) MURCIA, in ancient mythology, the goddeſs of idleneſs. The name is taken from *murcue* or *murcidus*, an obſolete word, ſignifying a dull, ſlothful, or lazy perſon. The ſtatues of this goddeſs were always covered with duſt and moſs, to expreſs her idleneſs and negligence. She had a temple in Rome, at the foot of the Aventine mount.

(2.) Murcia, in geography, a kingdom of Spain, bounded on the N. by New Caſtile, E. by Valencia, W. by Andaluſia and Granada, and S. by the Mediterranean. It is about 62 miles long, and 58 broad; its principal river is Segura. The ſoil being dry, it produces little corn or wine; but plenty of oranges, citrons, lemons, olives, almonds, mulberries, rice, pulſe, and ſugar. It has alſo a great deal of ſilk. It was taken from the Moors in 1265. The air is very healthful.

(3.) Murcia, a large, handſome, and populous town, capital of the above kingdom. It is a biſhop's ſee, and contains ſix pariſhes. The cathedral is a moſt ſuperb edifice, with the ſtairs of the ſteeple ſo contrived, that a man may ride up to the top, either on horſeback or in a coach. It is ſituated in a pleaſant plain, abounding in fine gardens, which produce the beſt fruits in Spain. It is ſeated on the Segura. Lon. 0. 36. W. Lat. 37. 48. N.

(1.) * **MURDER.** *n. ſ.* [*morthor*, *morther*, Sax. *murdrum*, law Lat. the etymology requires that it ſhould be written, as it anciently often was, *murther*; but of late the word itſelf has commonly, and its derivatives univerſally, been written with *d*.] The act of killing a man unlawfully; the act of killing criminally.—

Murders have been perform'd
Too terrible for th' ear. *Shak.*
Slaughter grows *murder* when it goes too far,
And makes a maſſacre what was a war. *Dryd.*

—The killing of their children had, in the account of God, the guilt of *murder*, as the offering them to idols had the guilt of idolatry. *Locke.*

(2.) MURDER, or MURTHER, comes from the Saxon *morth*, *death*; which ſome will have to ſignify a violent death; whence the barbarous Latin *murdrum* and *mordrum*. Murder is puniſhed with death in almoſt all nations.

(3.) MURDER, or MURTHER, in law, is thus defined, or rather deſcribed, by Sir Edward Coke: When a perſon, of ſound memory and diſcretion, unlawfully killeth any reaſonable creature in being, and under the king's peace, with malice aforethought, either expreſs or implied." 1. It muſt be committed by a perſon *of ſound memory and diſcretion*: for lunatics or infants are incapable of committing any crime; unleſs in ſuch caſes where they ſhow a conſciouſneſs of doing wrong, and of courſe a diſcretion or diſcernment between good and evil. 2. Next, it happens when a perſon of ſuch ſound diſcretion *unlawfully killeth*. The unlawfulneſs ariſes from the killing without warrant or excuſe: and there muſt alſo be an actual killing to conſtitute murther; for a bare aſſault, with intent to kill, is only a great miſdemeanour, though formerly it was held to be murder. The killing may be by poiſoning, ſtriking, ſtarving, drowning, and a thouſand other forms of death, by which human nature may be overcome. Of theſe the moſt deteſtable of all is poiſon; becauſe it can of all others be the leaſt prevented. And therefore, by ſtat. 22 Hen. VIII. c. 9. it was made treaſon, and a more grievous and lingering kind of death was inflicted on it than the common law allowed; namely, *boiling to death*: but this act was repealed by 1 Edw. VI. c. 12. There was alſo (ſays Judge Blackſtone) by the ancient common law, one ſpecies of killing held to be murder, viz. bearing falſe witneſs againſt another, with an expreſs premeditated deſign to take away his life. The Gothic laws puniſhed in this caſe the judge, the witneſſes, and the proſecutor; and, among the Romans, the *lex Cornelia de ſicariis*, puniſhed the falſe witneſs with death, though the modern law (to avoid the danger of deterring witneſſes from giving evidence upon capital proſecutions,) has not puniſhed it as ſuch. If a man, however, does ſuch an act, of which the probable conſequence may be, and eventually is, death; ſuch killing may be murder, although no ſtroke be ſtruck by himſelf, and no killing may be primarily intended: as was the caſe of the unnatural ſon who expoſed his ſick father to the air againſt his will, by reaſon whereof he died; and of the harlot, who laid her child under leaves in an orchard, where a kite ſtruck it, and killed it. So too, if a man hath a beaſt that is uſed to do miſchief; and he, knowing it, *ſuffers* it to go abroad, and it kills a man; even this is manſlaughter in the owner: but if he had purpoſely *turned it looſe*, though barely to frighten people, and make what is called *ſport*, it is (as in the Jewiſh law) as much murder as if he had incited a bear or a dog to worry them. If a phyſician or ſurgeon gives his patient a potion or plaſter to cure him, which, contrary to expectation, kills him, this is neither murder nor manſlaughter, but miſadventure; and he ſhall not be puniſhed criminally; but if it be not a *regular* phyſician or ſurgeon who adminiſters the medicine, or performs the operation, it is manſlaughter. Yet Sir Matthew Hale very juſtly queſtions this determination. To make the killing murder, it is requiſite that the party die within a year and a day after the ſtroke received, or cauſe of death adminiſtered; in the computation of which the whole day upon which the hurt was done ſhall be reckoned the firſt. 3. The perſon killed muſt be "*a reaſonable creature in being, and under the king's peace*," at the time of killing. Therefore to kill an alien, a Jew, or an outlaw, who are all under the king's peace or protection, is as much murder as to kill the moſt regular born Engliſhman; except he be an alien enemy, in time of war. To kill a child in its mother's womb, is now no murder, but a great miſpriſion; but if the child be born alive, and dieth by reaſon of the portion or bruiſes it received in the womb, it ſeems to be murder in ſuch as adminiſtered or gave them. As to the murder of baſtard-children, ſee BASTARD, N° I, § 6. 4. Laſtly, the killing muſt be committed "*with malice aforethought*," to make it murder. This is the grand criterion which now diſtinguiſhes murder from other killing: and this malice prepenſe, *malitia præcogitata*, is not ſo properly ſpite or malevolence to the deceaſed in particular, as an evil deſign in general; the dictate of a wicked, depraved, and malignant heart; and it may be either *expreſs*, or *implied*, in law. Expreſs malice is when one with a ſedate deliberate mind and formed deſign, doth kill another: which formed deſign is evidenced by external circumſtances diſcovering that inward intention: as lying in wait, antecedent menaces, former grudges, and concerted ſchemes to do him ſome bodily harm. This takes in the caſe of deliberate duelling, where both parties meet avowedly with an intent to murder: thinking it their duty, as gentlemen, and claiming it as their right, to wanton with their own lives and thoſe of their fellow-creatures; without any warrant or authority from any power either divine or human, but in direct contradiction to the laws both of God and man: and therefore the law has juſtly fixed the crime and puniſhment of murder on them, and on their ſeconds alſo. (See DUEL, § 2.) If even upon a ſudden provocation one beats another, in a cruel and unuſual manner, ſo that he dies, though he did not intend his death, yet he is guilty of murder by expreſs malice; i. e. by an expreſs evil deſign, the genuine ſenſe of *malitia.* As when a park-keeper tied a boy that was ſtealing wood to a horſe's tail, and dragged him along the park; when his maſter corrected a ſervant with an iron bar, and a ſchoolmaſter ſtamped on his ſcholar's belly ſo that each of the ſufferers died; theſe were juſtly held to be murders, becauſe the correction being exceſſive, it was equivalent to a deliberate act of ſlaughter. Neither ſhall he be guilty of a leſs crime, who kills another in conſequence of ſuch a wilful act as ſhows him to be an enemy to all mankind in general; as going deliberately, and with an intent to do miſchief, upon a horſe uſed to ſtrike, or coolly diſcharging a gun among a multitude of people. So if a man reſolves to kill the next man he meets, and does kill him, it is murder, although he knew him not; for this is univerſal malice. And if two or more come together to do an unlawful act againſt the king's peace, of which the probable conſequence might be bloodſhed; as to beat a man, to commit a riot, or to rob a park, and one of them kills a man; it is murder in them all, becauſe of the unlawful act, the *malitia præcogitata*, or evil intended beforehand. Alſo in many caſes where no malice is expreſſed, the law will imply it; as, where a man wilfully poiſons another, in ſuch a deliberate act the law preſumes malice, though no particular enmity can be proved. And if a man kills another ſuddenly, without any, or without a conſiderable provocation, the law implies malice. No affront, by words or geſtures only, is a ſufficient provocation, ſo as to excuſe or extenuate ſuch acts of violence as manifeſtly endanger the life of another. But if the perſon, ſo provoked, had unfortunately killed the other, by beating him in ſuch a manner as ſhowed only an intent to chaſtiſe and not to kill him, the law ſo far conſiders the provocation of contumelious behaviour, as to adjudge it only MANSLAUGHTER, and not murder. In like manner, if one kills an officer of juſtice, in the execution of his duty, or any of his aſſiſtants endeavouring to conſerve the peace, or any private perſon endeavouring to ſuppreſs an affray, or apprehend a felon, knowing his authority or the intention with which he interpoſes, the law will imply malice, and the killer ſhall be guilty of murder. And if one intends to do another felony, and undeſignedly kills a man, this is alſo murder. Thus if one ſhoots at A and miſſes him, but kills B, this is murder; becauſe of the previous felonious intent, which the law transfers from one to the other. The ſame is the caſe, where one lays poiſon for A and B, againſt whom the priſoner had no malicious intent, takes it, and it kills him, this is likewiſe murder. So alſo, if one gives a woman with child a medicine to procure abortion, and it operates ſo violently as to kill the woman, this is murder in the perſon who gave it. It is a general rule, that all homicide is malicious, and of courſe amounts to murder, unleſs where juſtified by the command or permiſſion of the law; excuſed on a principle of accident or ſelf-preſervation; or alleviated into manſlaughter, by being either the involuntary conſequence of ſome act, not ſtrictly lawful, or (if voluntary) occaſioned by ſome ſuddenly and ſufficiently violent provocation. All theſe circumſtances of juſtification, or alleviation, the priſoner muſt make out, to the ſatisfaction of the court and jury; the latter of whom are to decide whether the circumſtances alleged are proved to have exiſted; the former, how far they extend to take away or mitigate the guilt. For all homicide is preſumed to be malicious until the contrary is proved. The puniſhment of murder, and that of manſlaughter, were formerly the ſame; both having the benefit of clergy; ſo that none but unlearned perſons, who leaſt knew the guilt of it, were put to death for this enormous crime. But now, by ſeveral ſtatutes, the benefit of clergy is taken away from murderers through malice prepenſe, their abettors, procurers, and counſellors. In atrocious caſes, it was uſual for the court to direct the murderer, after execution, to be hung upon a gibbet in chains near the place where the fact was committed. But now, in England, it is enacted by ſtat. 25 Geo. II. c. 37. that the judge, before whom any perſon is found guilty of wilful murder, ſhall pronounce ſentence immediately after conviction, unleſs he ſees cauſe to poſtpone it; and ſhall in paſſing ſentence direct him to be executed on the next day but one (unleſs the ſame ſhall be Sunday, and then on the Monday following), and that his body be delivered to the ſurgeons to be diſſected and anatomized; and that the judge may direct his body to be afterwards hung in chains, but in nowiſe to be buried without diſſection. And, during the ſhort but awful interval between ſentence and execution, the priſoner ſhall be kept alone, and ſuſtained with only bread and water. But a power is allowed to the judge, upon good and ſufficient cauſe, to reſpite the execution, and relax the other reſtraints of this act. See PARRICIDE, and PETIT TREASON.

(4.) * MURDER. *interj.* An outcry when life is in danger.—

Kill men i' th' dark! where be theſe bloody
thieves?
Ho *murder! murder!* *Shak. Othello.*

* *To* MURDER. *v. a.* [from the noun.] 1. To kill a man unlawfully.—

If he dies, I *murder* him, not they. *Dryden.*

2. To deſtroy; to put an end to.—

Can'ſt thou quake and change thy colour,
Murder thy breath in middle of a word,
And then again begin, and ſtop again? *Shak.*
Let the mutinous winds
Strike the proud cedars to the fiery ſun,
Murd'ring impoſſibility, to make
What cannot be, ſlight work. *Shak. Coriol.*

(1.) * MURDERER. *n. ſ.* [from *murder.*] One who has ſhed human blood unlawfully; one who has killed a man criminally.—Thou doſt kill me with thy falſehood, and it grieves me not to die; but it grieves me that thou art the *murderer.* *Sidn.*

I am his hoſt,
Who ſhould againſt his *murd'rer* ſhut the door,
Not bear the knife myſelf. *Shak. Macbeth.*
Thou tell'ſt me there is *murder* in mine eyes;
'Tis pretty ſure,

That eyes, that are the frail'ſt and ſofteſt things,
Who ſhut their coward gates on atomies,
Should be call'd tyrants, butchers, *murderers.* *Shak.*

—The very horror of the fact had ſtupified all curioſity, and ſo diſperſed the multitude, that even the *murderer* himſelf might have eſcaped. *Wotton.*

Like ſome rich or mighty *murderer,*
Too great for priſon, which he breaks with gold. *Dryden.*

—This ſtranger having had a brother killed by the conſpirator, and having fought in vain for an opportunity of revenge, chanced to meet the *murderer* in the temple. *Addiſon.*—

With equal terrors, not with equal guilt,
The *murd'rer* dreams of all the blood he ſpilt. *Swift.*

(2.) Murderers, or Murdering Pieces, in a ſhip, are ſmall pieces of ordnance, either of braſs or iron, which have chambers put in at their breeches. They are uſed at the bulk-heads of the fore-caſtle, half-deck, or ſteerage, in order to clear the deck, when the ſhip is boarded by an enemy.

* MURDERESS. *n. ſ.* [from *murderer.*] A woman that commits murder.—

When by thy ſcorn, O *murd'reſs!* I am dead,
Then ſhall my ghoſt come to thy bed. *Donne.*
Diana's vengeance on the victor ſhown,
The *murd'reſs* mother, and conſuming ſon. *Dryd.*
Art thou the *murd'reſs* then of wretched Laius? *Dryden.*

* MURDERMENT. *n. ſ.* [from *murder.*] The act of killing unlawfully. Not in uſe.—

To her came meſſage of the *murderment.* *Fairfax.*

* MURDEROUS. *adj.* [from *murder.*] Bloody; guilty of murder; addicted to blood.—

Upon thy eye-balls *murd'rous* tyranny
Sits in grim majeſty to fright the world. *Shak.*
Oh *murd'rous* coxcomb! what ſhould ſuch a fool
Do with ſo good a wife? *Shak. Othello.*
Enforc'd to fly
Thence into Egypt, till the *murd'rous* king
Were dead, who ſought his life. *Milton.*
If ſhe has deform'd this earthly life
With *murd'rous* rapine and ſeditious ſtrife;
In everlaſting darkneſs muſt ſhe lie. *Prior.*

(3.) MURE, a town of France, in the dep. of Iſere, 18 miles S. of Grenoble, and 20 NE. of Die.

(2.) Mure, a cape of Corſica, 13 miles SW. of Ajaccio.

(3.) * Mure. *n. ſ.* [*mure,* Fr. *murus,* Lat.] A wall. Not in uſe.—

The inceſſant care and labour of his mind
Hath wrought the *mure,* that ſhould confine it in,
So thin, that life looks through. *Shak.*

* *To* Mure. *v. a.* [*murer,* Fr. from *murus,* Lat.] To incloſe in walls.—All the gates of the city were *mured* up, except ſuch as were reſerved to ſally out at. *Knolles.*

MURENA. See Muræna.

(1.) * MURENGER. *n. ſ.* [*murus,* Lat. An overſeer of a wall. *Ainſworth.*

(2.) Murengers are two officers of great antiquity in the city of Cheſter, annually choſen out of the aldermen, to ſee that the walls are kept in repair, and to receive a certain toll and cuſtom for the maintenance thereof.

MURES. See Mus.

(1.) MURET, a town of France, in the dep. of Upper Garonne, and ci-devant prov. of Gaſcony; remarkable for the defeat of the Albigenſes, in 1213, and death of Peter, king of Arragon, their ally, who lies interred near it. It is ſeated on the Garonne, 10 miles S. of Toulouſe, and 13½ N. of Rieux. Lon. 1. 18. E. Lat. 43. 46. N.

(2.) MURET, or MURETUS, Mark Anthony Francis, was born at Muret, near Limoges, in 1526. He acquired a perfect knowledge of the Greek and Latin tongues without inſtruction, and became one of the moſt learned men of his time. After having taught ſome time in Provence, he was made a profeſſor at Paris, along with Turnebus and Buchanan. In 1544 he went into Italy; and in 1563 was profeſſor of law, philoſophy, and hiſtory, at Rome, where he died in 1585. His principal works are, 1. Excellent notes on Terence, Horace, Catullus, Tacitus, Cicero, Salluſt, Ariſtotle, Xenophon, &c. 2. *Orationes.* 3. *Variæ Lectiones, Poemata, Hymni Sacri.* 4. *Diſputationes in Lib. I. Pandectorum, de Origine Juris, &c.* 5. *Epiſtolæ, Juvenilia Carmina, &c.* Moſt of his works have been printed in the Venice edition of 1737, in 5 vols 8vo.

(1.) MUREX, in zoology, a genus of inſects belonging to the order of vermes teſtacea. This animal is of the ſnail kind: the ſhell conſiſts of one ſpiral valve, rough, with membranaceous furrows; and the aperture terminates in an entire canal, either ſtraight, or ſomewhat aſcending. There are 60 ſpecies, particularly diſtinguiſhed by peculiarities in their ſhells, &c. From a ſpecies of murex was obtained the famous Tyrian dye, ſo much valued by the ancients. This, however, has long been ſuperſeded by the uſe of the cochineal. One of the ſhells producing the dye was a kind of buccinum; but the fineſt, or Tyrian purple, was got from the murex. Theſe ſpecies of ſhells are found in various parts of the Mediterranean. Immenſe heaps of them are to be ſeen about Tarentum, evincing one place where this precious liquor was extracted. See *Pl.* CCXXVII, *fig.* 1—4. They are alſo found on the coaſts of Guayaquil and Guatimala in Peru. The ſhells adhere to the rocks that are waſhed by the ſea; and are of the ſize of a large walnut. The liquor may be extracted two ways: ſome kill the animal after they have drawn it out of the ſhell; then preſs it with a knife from head to tail; ſeparate from the body the part where the liquor is collected, and throw away the reſt. When this operation, after being repeated on ſeveral ſnails, has afforded a certain quantity of fluid, the thread intended to be dyed is dipped in it, and the proceſs is finiſhed. The colour, which is at firſt of the whiteneſs of milk, becomes afterwards green, and is not purple till the thread is dry. Others draw the fiſh partly out of the ſhell, and, ſqueezing it, make it yield a fluid which ſerves for dyeing: they repeat this operation 4 times, at different intervals, but always with leſs ſucceſs. If they continue it, the fiſh dies. No colour, at preſent known, ſays the Abbé Raynal, can be compared to this, either as to luſtre, livelineſs, or duration. It ſucceeds better on cotton than wool, linen, or ſilk.

(2.) **Murex**, a caltrap or iron inſtrument, with ſharp points projecting in every direction, uſed by the Romans as a defence againſt the enemy's horſe. It was ſo called, probably, becauſe the points bore ſome reſemblance to the ſpines and tubercles with which the ſhell of the fiſh murex is ſurrounded.

MURG, a river of Suabia, which riſes 2 miles SE. of Oppenau, runs SSE. to lake Elp, near which it is joined by the Lorbach, when it runs N. to Gerſpach, and then NW. by Raſtadt, &c. and falls into the Rhine.

MURGENTHAL, a town of Switzerland in Berne; 15 miles E. of Soleure.

MURGI, or **MURGIS**, in ancient geography, the laſt town of Hiſpania Bætica, next the Tarraconenſis; the Urce of Ptolemy. Now called **Muxara**, a port town of Granada, on the Mediterranean. Lon. 1. 50. W. Lat. 37. 6. N.

MURHARD, or **MURHART**, a town of Wirtemburg, on the Muhr, 22 miles NE. of Stuttgard, and 62 SE. of Worms. Lon. 9. 51. E. Lat. 48. 56. N.

MURIA, alimentary ſalt. See Salt.

MURIATES. See Chemistry, *Ind.* & *Vocab.* II.

(1.) * **MURIATIC**. *adj.* Partaking of the taſte or nature of brine, from muria, brine or pickle. *Quincy.*—If the ſcurvy be entirely *muriatic*, proceeding from a diet of ſalt fleſh or fiſh, antiſcorbutic vegetables may be given with ſucceſs, but tempered with acids. *Arbuthnot.*

(2.) **Muriatic Acid**. See Chemistry, *Ind.*

(3.) **Muriatic Acid, method of procuring.** The following proceſs is uſed by M Chaptal. "To extract this acid (ſays he), I place a large glaſs alembic, of one ſingle piece, upon a ſand-bath. To the alembic I adapt a ſmall receiver; and to the receiver 3 or 4 ſmall bottles nearly filled with diſtilled water, and arranged according to the method of Mr Woulfe. I diſpoſe the receiver and bottles in a ciſtern, the places of junction being luted with fat lute, and ſecured with rags ſoaked in the lute of lime and whites of eggs. Laſtly, I ſurround the bottles with pounded ice. When the apparatus is thus diſpoſed, I introduce into the alembic half a pound of mangane ſe of Cevennes, and pour upon it, at ſeveral repetitions, 3 lb of fuming muriatic acid. The quantity of acid which I pour at once is 3 oz. and at each time of pouring, a conſiderable efferveſcence is raiſed. I do not pour a new quantity until nothing more comes over into the receivers. This method of proceeding is indiſpenſably neceſſary when the operator is deſirous of making his proceſs with a definite quantity of materials; for if too large a quantity of acid be poured on at once, it is impoſſible to reſtrain the vapours; and the efferveſcence will throw a quantity of mangane ſe into the receiver. The vapours which are developed by the effuſion of muriatic acid are of a greeniſh yellow colour, and they communicate this colour to the water when they combine with it. When this vapour is concentrated by the ice, and the water is ſaturated with it, it forms a ſcum on the ſurface, which is precipitated through the liquid, and reſembles a congealed oil. It is neceſſary to aſſiſt the action of the muriatic acid by a moderate heat applied to the ſand bath. The ſecure luting of the veſſels is alſo an eſſential circumſtance; for the vapour which might eſcape is ſuffocating, and would not ſuffer the chemiſt to inſpect his operation cloſely. It is eaſy to diſcover the place where it eſcapes through the lutes, by running a feather dipped in volatile alkali over them; the combination of theſe vapours inſtantly forms a white cloud, which renders the place of eſcape viſible. The ſame oxygenated muriatic acid may be obtained, by diſtilling in a ſimilar apparatus 10 lb. of marine ſalt, 3 or 4 lb. of mangane ſe, and 10 lb of ſulphuric acid. Mr Reboul has obſerved, that the concrete ſtate of this acid is a cryſtallization of it, which takes place at 3° below the freezing point of Reaumur. The forms which have been obſerved are thoſe of a quadrangular priſm, truncated very obliquely, and terminated by a lozenge. He has likewiſe obſerved hollow hexahedral pyramids on the ſurface of the liquor. To make uſe of the oxygenated acid in the arts, and to concentrate a greater quantity in a given volume of water, the vapour is made to paſs through a ſolution of alkaline ſalt. A white precipitate is at firſt formed in the liquid; but ſoon afterwards the depoſition diminiſhes, and bubbles are diſengaged, which are the carbonic acid. In this caſe two ſalts are formed, the oxygenated muriate and the ordinary muriate. The mere impreſſion of light is ſufficient to decompoſe the former, and to convert it into common ſalt. This lixivium contains indeed the oxygenated acid in a ſtronger proportion. The execrable ſmell of the acid is much weakened. It may be employed for various uſes with the ſame ſucceſs, and with great facility; but the effect is very far from correſponding with the quantity of oxygenated acid which enters into this combination, becauſe the virtue of a great part is deſtroyed by its union with the alkaline baſis.—The oxygenated muriatic acid has an exceſſively ſtrong ſmell. It acts directly on the larynx, which it ſtimulates, excites coughing, and produces violent headaches." The apparatus recommended by M. Berthollet is on the ſame plan with M. Chaptal's, though the ſcale is much larger. The vapour with which the water is to be impregnated, ought not to ruſh out of the diſtilling veſſel with too great haſte; as in this caſe a great quantity will be loſt, by the water not having time to abſorb it all. To avoid this, matters ſhould be managed in ſuch a manner, that, without ſenſibly interrupting the operation, the vapour may iſſue from the diſtilling veſſel gradually, and without ſudden exploſions; by which means the water will imbibe as faſt as the veſſel diſtils for a certain time; and to preſerve all the vapour, there ought to be ſeveral receivers, one above the other, communicating by pipes, that the vapour which does not condenſe in one may do ſo in the other.—The following apparatus may be uſed with ſucceſs: 1. For the diſtilling veſſel. A large bottle of common brown earthen ware (ſee *Plate* CCXXVII. *fig.* 9.) is undoubtedly the cheapeſt, and moſt eligible diſtilling veſſel that can be uſed; as it is not liable to break, and may be uſed long without being corroded. It may be placed in a ſand-bath; or if it be luted, it may be put on an open fire, which ought not to be raiſed to a great height. 2. The receivers ought to be large ſquare ciſterns of wood, covered over on the inſide with white wax, on which the acid has no effect; and they may be placed one above the other, with cocks ſo ſituated, that the water of the upper ciſterns may be diſcharged into the lower ones as occaſion requires. The lowermoſt ciſtern muſt alſo be furniſhed with a cock, for running off the liquor into the veſſels in which the cloth is to be ſteeped. 3. The bottle muſt be furniſhed with a glaſs tube to convey the ſteam from it into the receiver; but to prevent any of the acid from getting in amongſt the liquor deſigned for bleaching, it will be neceſſary to have a ſmall caſk interpoſed betwixt it and the receivers; which will alſo prevent the liquor from being dirtied by any ſudden ſwell of the mixture in the bottle. 4. It will be convenient, and may be eaſily accompliſhed in moſt bleaching houſes, to have a ſmall ſtream of clear water running into it, higher than the level of the uppermoſt reſervoir; by which means they can all be filled to a ſufficient depth with very little trouble. The apparatus then will be repreſented on *Plate* CCXXVII. *fig.* 10, where A is the bottle containing the mixture; B the ſand pot, furnace, door, and aſh-hole; C the glaſs tube to convey the ſteam into the caſk D, placed there on purpoſe to catch any acid which may diſtil, or ſmall quantity of the mixture which may boil over. E is another glaſs tube communicating with the lowermoſt reſervoir *d*, into which it conveys the ſteam to be abſorbed by the water lying in its bottom. The three ciſterns communicate on their upper parts by means of the pipes *m* and *n*, by which the ſteam which does not condenſe in the lower reſervoir is conveyed to the middle one *e*, and that which does not condenſe in the middle one is conveyed to the upper one *f*; in which a vent is finally given to it at *g*; or if three reſervoirs are not ſufficient, there may be one or more placed on the top of theſe, in a ſimilar manner. The operation is begun by putting into the bottle A, a quantity of ſtrong ſpirit of ſalt diluted with at leaſt [illegible] times its quantity of water, ſufficient to fill ſomewhat more than one half of it. The mangane︎ſe, reduced to as fine a powder as poſſible, is made up into ſmall pellets or balls, with water, and thrown in at the lateral neck of the bottle. A few only are thrown in at once, and the mouth inſtantly ſtopped with a cork; a briſk effervesſcence will immediately enſue, and a conſiderable quantity of vapours will come over without heat, paſſing through the pipes C and E into the reſervoir *d*; from thence through *m* into the reſervoir *e*, and from *e* into *f*; the ſmall quantity which ſtill remains uncondenſed paſſing out at the vent *g*, which ought to be under a chimney, or to be fitted with an upright pipe going through the roof of the houſe. A fire being applied, the vapour will begin to iſſue out through the pipes in greater quantities, but by the time the liquor has begun to boil, the vapour will have entirely paſſed over. This may be eaſily known to be the caſe by the heat of the glaſs tubes. On this the cork is to be pulled out, and two or three more pellets of mangaueſe are to be thrown in, and the mouth ſtopped up as quickly as poſſible. The vapour from theſe will be quickly diſſipated, and the operation muſt be repeated until no more effervescence ariſes upon throwing in the manganeſe. When this is the caſe, a freſh quantity of ſpirit of ſalt diluted, but not ſo much as the preceding, is to be added, and this again treated with more manganeſe as before; continuing the operation till the bottle be ſuppoſed as full as convenient for the operation. The whole muſt now be allowed to cool; and it would be proper to have another furnace, ſand pot, and bottle, to join immediately to the reſervoirs, that the operation may not be interrupted.—The water in the lowermoſt reſervoir will always be moſt ſtrongly impregnated, and may be known to be of ſufficient ſtrength when a few threads of flax put into it are viſibly whitened in 2 or 3 minutes. It is then to be let off into the large reſervoir for ſteeping the cloth; the water in the middle receiver, which is alſo partly impregnated with the gas, muſt be let down into the lowermoſt one by turning the cock of the pipe *i*, which runs off the water to the bottom. In like manner, the water in the upper ciſtern *f* is let down into the middle ciſtern *e*, by turning the cock belonging to the pipe *h*, while that in *f* is to be replaced by freſh water from the ſtream which runs into the houſe.—The reſiduum of the diſtillation is a ſolution of manganeſe in common ſpirit of ſalt, from which the metal may be precipitated by cauſtic volatile alkali, and the liquid will afford ſal ammoniac. A great part of the muriatic acid will remain undecompoſed, even after we have added as much manganeſe as will excite effervescence. This may be extemporaneouſly recovered by pouring into the diſtilling veſſel a ſmall quantity of oil of vitriol. This expels the muriatic acid from the manganeſe with which it is united, and renders it again capable of acting upon more; but when the addition of a ſmall quantity of this acid has no effect in producing the proper gas, we may then be ſure that the operation is completed. The reſiduum is now a combination of manganeſe with vitriolic acid, and may be decompoſed by volatile alkali, ſo that it ſtill can be of uſe to make ſpirit of hart's-horn and ſal ammoniac. Thus by a very eaſy proceſs, without the ſmalleſt danger to the health of the workmen, an unlimited quantity of oxygenated muriatic acid may be prepared of a ſufficient ſtrength to anſwer every uſeful purpoſe,

(4.) MURIATIC ACID, METHOD OF USING. The next and moſt important conſideration is the method of uſing the liquor after it is diſtilled. And here, as the volatility of the gas is the principal obſtacle to the preſervation of its ſtrength, it is indiſpenſably neceſſary to have it to run from a covered ſpout into a covered veſſel where the cloth is placed. It is likewiſe a matter of importance to have the cloth ſpread among the liquid in ſuch a manner that the power of the gas may be equally diffuſed over its whole ſurface; for if it lies in folds upon one another, it will undoubtedly be ſpotted, let us do as we will. To prevent this in the moſt effectual manner, it is neceſſary to roll the cloth as is done by dyers to make their colours ſtrike equally; for this operation we may account a kind of dyeing *white*; and the ſame precautions are undoubtedly neceſſary to make this colour equal as any other. With regard to the uſe of this liquid itſelf, it muſt be obſerved, that though very cheap, yet water is ſtill cheaper; and whatever can be done by mere water, ought to be previouſly done to the cloth before it is immerſed in the dephlogiſticated liquor. With this view it ought to undergo a long continued but gentle fulling, a ſtream of warm water conſtantly running upon it all the while, whereby an incredible quantity of filth will be ſeparated. Cloth, when thus treated for a conſiderable time, will be very nearly as well whitened as that which has been boiled in alkali. *Streaming* the cloth, or immerſing it for ſome time in a ſtream of running water, would alſo be of very conſiderable uſe as a preparation; but boiling with alkaline ſalt ſeems to be better omitted till after the cloth has undergone two or three operations in the oxygenated muriatic acid; becauſe this liquid, even when very weak, will cleanſe conſiderably, and extract a great quantity of ſordes, which would load the alkali and deſtroy its force. Having thus prepared the cloth, it is to be put into the veſſel deſigned for whitening, put over the roller, and a quantity of the liquid let into it. As the cloth whitens, the liquor gradually loſes its ſmell, and ſoon becomes incapable of giving any additional whiteneſs. This may be perceived by having a ſmall door in the ſide of the veſſel, which may be opened occaſionally, and a bit of the cloth pulled out through it and inſpected. When the firſt quantity of liquid, therefore, appears to have no more effect, it muſt be allowed to run off into another veſſel; but is not yet to be thrown away, becauſe it is ſtill much more powerful than water, and will have a conſiderable effect upon cloths which have undergone the aqueous preparation. After the firſt quantity of liquid is run off, another muſt be admitted from the lowermoſt reſervoir, and is to be uſed in the ſame manner with the former; only it will now be ſomewhat longer before its ſtrength is exhauſted. When this is the caſe, a third quantity is to be employed, and ſo on till the effect of the liquid begin to diminiſh. The cloth muſt then be taken out, fulled, and thoroughly cleaned of the acid by water, before the next operation, which is boiling with alkali. The lixivium ought to be of conſiderable ſtrength, that the liquor may eaſily be evaporated, and part of the alkali recovered (ſee POTASH); but as the cloth will neceſſarily retain a conſiderable quantity of this ſtrong lixivium, it muſt be wrung out by a proper inſtrument for that purpoſe, and the liquid which falls from it ſaved and returned again into the kettle. The cloth, ſtill retaining a quantity of alkali which could not be wrung out, muſt be thrown into a cauldron of boiling water, and allowed to remain there for a quarter of an hour; after which it is to be taken out and wrung as before. The water of the 2d cauldron will be ſlightly alkaline, and may be uſed as a preparation for cloth, or for filling up the veſſel containing the ſtrong alkali as it evaporates. Before the cloth is returned into the oxygenated liquor, it is neceſſary that the alkaline ſalt be entirely taken out of it, which can only be ſpeedily done by fulling, ſtreaming, or ſteeping in repeated quantities of water. When all this is done, it will moſt probably be of a darker colour than before; but this will go off in a few minutes, and the cloth will become much whiter than ever. The remainder of the operation is only a repetition of the proceſſes already deſcribed, and for which no other directions are requiſite, than that both alkali and acid, the latter eſpecially, always looſen a quantity of ſordes, which, unleſs waſhed off, ſoon prevents their own operation. As ſoon therefore, as the cloth is taken out of either the alkaline or acid liquor, every method muſt be uſed conſiſtent with the ſafety of its texture to clear it of this looſe matter, which will allow the liquor into which it is next plunged to have the greater effect. The nearer the cloth approaches to perfect whiteneſs, the leſs effect has either of the liquids upon it; and therefore there is a neceſſity either for increaſing the ſtrength of the muriatic acid, or allowing it a longer time; but the latter is the preferable method; and, after all, it would be proper to expoſe the cloth for a few days to the air, which will effectually prevent any change of colour afterwards. M. Chaptal obſerves, that this acid may be applied to the whitening of paper and old prints; and by its means (he ſays) they obtain a whiteneſs which they never had before. Common ink diſappears by its action, but it has no effect upon printer's ink.—It thickens oils, and calcines metals to ſuch a degree, that the proceſs may be much expedited by its means. It diſſolves metals without efferveſcence, and precipitates mercury from its ſolutions, converting it into corroſive ſublimate.—It acts, likewiſe, very vigorouſly upon metallic calces, forming with them ſalts more readily than other acids. He adds, that the combination of the muriatic acid with vegetable alkali, named *febrifuge ſalt of Sylvius*, is found, though in ſmall quantities, in ſea water, plaſter, and the aſhes of tobacco.

(5.) MURIATIC ACID, OXYGENATED. See ACID, and OXYGENATED.

(6.) MURIATIC ÆTHER. See CHEMISTRY, *Index*.

MURJATTA, a river of Indoſtan, one of the mouths of the GANGES.

(1.) **MURILLO**, Bartholomew-Stephen, a celebrated painter, born at Pilas near Seville, in 1613. He was inſtructed by his uncle John del Caſtillo, an artiſt of ſome note; but his principal knowledge in the art was derived from Velaſquez. Some ſay that he ſtudied at Rome; but Velaſco, a Spaniſh author, affirms that he never was in Italy, but arrived at excellence by copying the works of Titian, Rubens, and Vandyck, at Madrid and the Eſcurial. He was employed by the king of Spain to execute ſeveral hiſtorical pictures, which being afterwards ſent to Rome as a preſent to the pope, the Italians were ſo much pleaſed, that they called him a ſecond *Paul Veroneſe*. He deſigned and finiſhed ſeveral grand altar-pieces, for the churches at Madrid, Seville, Cordova, Cadiz, Granada, and Flanders. His favourite ſubjects were beggar boys, as large as life. His original pictures have great merit, and are admitted into the moſt capital collections. He died in 1685.

(2.) MURILLO, a town of Spain, in Arragon.

MURINA, or MURINES, a delicious ſweet wine, medicated with ſpices, and the uſual drink of the ladies of antiquity.

(1.) MURINE. *adj.* Of or belonging to mice, or the genus of MUS.

(2.) MURINE QUADRUPEDS, the Engliſh name given by Mr Kerr, in his tranſlation of *Linnæus's Zoology* to the genus MUS: which is divided (by Dr Gmelin into 4 ſections; viz. 1. MYOCASTORES, *Beaver Rats:* 2. MURES, *Rats* and *Mice:* 3. CRICETI, *Hamſters:* and, 4. MYOTALPÆ, *Mole Rats.* See MUS, N° III.

MURINES. See MURINA.

MURITZ, a lake of Mecklenburg.

(1.) * MURK. *n. ſ.* [*morck*, Daniſh, dark.] Darkneſs; want of light.—

Ere twice in *murk* and occidental damp,
Moiſt Heſperus hath quench'd his ſleepy lamp. *Shak.*

(2.) * MURK. *n. ſ.* Huſks of fruit. *Ainſ.*

* MURKY. *adj.* [*morck*, Daniſh.] Dark; cloudy; wanting light.

The *murkieſt* den,
The moſt opportune place, the ſtrong'ſt ſuggeſtion,
Shall never melt mine honour into luſt. *Shak.*
So ſcented the grim feature, and up-turn'd
His noſtrils wide into the *murky* air. *Milton.*
A *murky* ſtorm deep lowring o'er our heads
Hung imminent. *Addiſon.*

MURLAVADDY, a town of Indoſtan, in Myſore, 21 miles S. of Bangalore.

MURMANSKOI BEREG, the NE. coaſt of Ruſſian Lapland. See LAPLAND, § II.

* MURMUR. *n. ſ.* [*murmur*, Lat. *murmure*, Fr.] 1. A low ſhrill noiſe.—Flame as it moveth within itſelf, or is blown by a bellows, giveth a *murmur* or interior ſound. *Bacon.*

When the wing'd colonies firſt tempt the ſky,
Or ſetting, ſeize the ſweets the bloſſoms yield,
Then a low *murmur* runs along the field. *Pope.*
Black Melancholy ſits,
Deepens the *murmur* of the falling floods,
And breathes a browner horror on the woods. *Pope.*

2. A complaint half ſuppreſſed; a complaint not openly uttered.—

Some diſcontents there are; ſome idle *murmurs*;
How idle *murmurs!* *Dryden.*

* *To* MURMUR. *v. n.* [*murmuro*, Lat. *murmurer*, Fr.] 1. To give a low ſhrill ſound.—

The *murmuring* ſurge,
That on th' unnumber'd idle pebbles chafes,
Can ſcarce be heard ſo high. *Shak.*
Amid an iſle, around whoſe rocky ſhore
The foreſts *murmur*, and the ſurges roar. *Pope.*
The buſy bees with a ſoft *murmuring* ſtrain,
Invite to gentle ſleep the lab'ring ſwain. *Dryd.*

2. To grumble; to utter ſecret and ſullen diſcontent; with *at* before things, and *againſt* before perſons.—

The good we have enjoy'd from heav'n's free will;
And ſhall we *murmur* to endure the ill? *Dryd.*

—*Murmur* not *at* your ſickneſs. *Wake.*—The good conſequences of this ſcheme, which will execute itſelf without *murmuring againſt* the government are very viſible. *Swift.*

* MURMURER. *n. ſ.* [from *murmur.*] One who repines; one who complains ſullenly; a grumbler; a repiner; a complainer.—

For living *murmurers*
There's places of rebuke. *Shak.*

—The *murmurer* is turned off to the company of thoſe doleful creatures, which were to inhabit the ruins of Babylon. *Gov. of the Tongue.*—

Still might the diſcontented *murmurer* cry,
Ah, hapleſs fate of man! *Blackmore.*

MURNAU, a town of Germany, in Bavaria.

MURNIG SEE, a lake of Carinthia.

* MURNIVAL. *n. ſ.* [*morneſle*, Fr. from *morner*, to ſtun.] Four cards of a ſort. *Skinner and Ainſ.*

(1.) MURO, a mountain of Portugal.

(2, 3.) MURO, two towns of Naples: 1. In Baſilicata, 59 miles NE. of Naples: 2. In Otranto, ſix miles NNE. of Aleſſano.

MUROL, a town of France, in the department of Puy de Dome, three miles N. of Beſſe.

MUROS, two towns of Spain: 1. In Aſturia, 17 miles NNW. of Oviedo: 2. In Galicia, at the mouth of the Tambro, 25 miles W. of Compoſtella.

MURPHY, Henry, a late elegant poet, and extraordinary mathematical genius, born in Ireland, in 1766. He was author of *the Conqueſt of Quebec*, and other admired poems. He afforded a ſtrong proof of the uncommon vigour to which the mental faculties may arrive, under the diſadvantage of a total defect of ſight. Deprived of viſion in the 4th year of his age by the ſmall-pox, his mind ſeemed to have acquired additional powers from the loſs. The extent of his memory was aſtoniſhing; the moſt intricate calculations were ſolved almoſt inſtantly, by the mere operation of his thought, and ſo accurately, that not a ſingle error could be diſcovered in the moſt complicated. His ſkill in mathematics was equally aſtoniſhing. This extraordinary genius died at Seaview, in Wexford, June 22. 1795, aged 29.

MURR, a cluſter of iſles, S. of Labrador.

MURRA, a town of Arabia, in Yemen.

(1.) * MURRAIN. *n. ſ.* [The etymology of this word is not clear; *mur* is an old word for a catarrh, which might well anſwer to the glanders; *muriana*, low Latin. *Skinner* derives it from *mori*, to die.] The plague in cattle.—

Away, ragg'd rams, care I what *murrain* kill? *Sidney.*

—Some trials would be made of mixtures of water in ponds for cattle, to make them more milch, to fatten, or to keep them from *murrain*. *Bacon.*

A hallowed band
Could tell what *murrains*, in what months begun. *Garth.*

(2.) MURRAIN, or GARGLE, is a contagious diſeaſe. The ſymptoms are, a hanging down and ſwelling of the head, abundance of gum in the eyes, rattling in the throat, a ſhort breath, palpitation at the heart, ſtaggering, a hot breath, and a ſhining tongue. To prevent this diſeaſe, the cattle ſhould ſtand cool in ſummer, and have plenty of good water. All carrion ſhould be ſpeedily buried; and as the feeding of cattle in wet places, on rotten graſs and hay, often occaſions this diſeaſe, dry and ſweet fodder ſhould be given them.

(1.) **MURRAY**, James, Earl of, a natural ſon of K. James V. by a daughter of the E. of Mar, was born in 1529. He was created Earl of Murray by Queen Mary, to whom he made not the moſt grateful return. In 1567 he was appointed regent of Scotland, in the minority of K. James VI.; but was ſhot in Linlithgow by one Hamilton, in 1571. See SCOTLAND.

(2.) **MURRAY**, Anna, Lady HALKET, an excellent Engliſh lady, but of Scottiſh deſcent, being daughter of Mr Robert Murray, preceptor to Prince Charles (afterwards K. Charles I.), and deſcended from the Earl of Tullibardin, by Jane Drummond, a daughter of the E. of Perth. She was born at London, Jan. 4th. 1622, educated by her mother, and married to Sir James Halket, in 1656, by whom ſhe had four children. She was uncommonly pious and charitable, and although a decided royaliſt, ſhe was kind to the perſecuted of all parties, who fled to her for refuge, in thoſe troubleſome times. She wrote 21 books of *Meditations* upon various religious ſubjects, from which a volume was ſelected and printed at Edinburgh in 1701 and 1778, 8vo. with her life prefixed. She died on the 22d April 1699, a day on which ſhe *wiſhed* to die, and had ſet apart as a day of faſting for 29 years preceding.

(3.) **MURRAY**, James, M. A. a Scottiſh divine born at Dunkeld, in 1703, and educated at Aberdeen. He was paſtor of a diſſenting congregation in Swallow-Street, London, and publiſhed a work, entitled *Aletheia*, or *A Syſtem of Moral Truths*; in 4 vols. 12mo. He died in 1758, aged 55.

(4.) **MURRAY**, James, A. M. a native of Scotland, and miniſter of a diſſenting congregation, at or near Newcaſtle upon Tyne. He wrote many books, ſome of them under very humorous titles; though on religious ſubjects: 1. *Sermons to Aſſes*: 2. *Sermons to* Doctors in Divinity, being the 2d Part of Sermons to Aſſes: 3. *Sermons to Miniſters of State*, &c. But, 4, his moſt important work was his *Hiſtory of the American War*, in 4 vols. 8vo. He died in 1782.

(5.) **MURRAY**, William, another diſſenting clergyman, born in Scotland, in 1691; who became paſtor of a congregation at Birmingham, where he died in 1753, aged 62. He publiſhed an uſeful work, entitled *Cloſet Devotions*.

(6.) **MURRAY**, William, Earl of MANSFIELD, the 4th ſon of David, Earl of Stormont, was born at Perth, in 1705. He was educated at Weſtminſter, and ſtudied at Chriſt Church, Oxford, where he took his degrees. He afterwards travelled, and on his return, entered at Lincoln's Inn, and in due courſe was called to the bar, where he ſoon diſtinguiſhed himſelf by his abilities as an advocate. On the 20th November 1738, he married lady Elizabeth Finch, daughter of Lord Winchelſea. In 1742 he was appointed ſolicitor-general, and elected M. P. for Borough-Bridge. In 1754, he was appointed attorney-general, and in 1756, Lord Chief Juſtice of the King's Bench, in the practice of which court he made many improvements. He was ſoon after created Baron Mansfield. In 1757 he was appointed chancellor of the Exchequer, in which office he effected a coalition of parties, whereby an adminiſtration was formed that carried the glory of Britain to a moſt unrivalled pitch. In 1776 he was created Earl of Mansfield. In 1780, when London was a ſcene of anarchy, his lordſhip's houſe in Bloomſbury Square was burnt by a lawleſs mob; his valuable library and MSS. annihilated, and even his perſon endangered. (See ENGLAND, § 101, 102; GORDON, N° 2; and LONDON, § 14.) A reſolution of the Houſe of Commons was paſſed to make him a compenſation for his loſs; but he generouſly refuſed to accept of any. Indeed, no pecuniary recompenſe could make up for the loſs of ſo great a man's MSS. either to him, or to the republic of letters. In June 1788 he was obliged, by the infirmities of age, to reſign his office; on which occaſion he received a moſt reſpectful addreſs from the gentlemen of the bar, tranſmitted to him in their name by the Hon. Thomas Erſkine. This great lawyer, whoſe abilities and probity will ever be an honour to his country, died March 20th 1793, aged 89, and his remains lie interred in Weſtminſter Abbey, between thoſe of the E. of Chatham and lord Robert Manners. As he died without iſſue, his titles and fortune deſcended to his nephew, the E. of Stormont.

(7.) **MURRAY**, Richard, D. D. late provoſt of Trinity College, Dublin, was born in 1726. After the uſual courſe of ſtudy, he became a fellow of Trinity College about 1748, and was afterwards appointed profeſſor of mathematics; in which office he diſplayed uncommon abilities as a teacher. There was a ſimplicity, preciſion, and clearneſs in his method, by which he conveyed his ideas, even on the difficult and abſtract ſcience of *Analytics*, with the greateſt eaſe and accuracy; while the comprehenſive view, which he exhibited, of every branch of mathematics, proved him to poſſeſs a moſt vigorous underſtanding. He was afterwards promoted to the provoſtſhip, by E. Fitzwilliam, with the approbation of the whole univerſity. From his abilities and length of ſtanding, as well as from his offices, he was conſidered as the *father* of the univerſity; in which he always preſerved the moſt perfect concord, which his predeceſſors had failed to do. He publiſhed an *Epitome of Logic*, which is much eſteemed. He was ſo conſtantly devoted to ſtudy, that he never married; and what is much more to his honour, never had any illicit connection with the ſex. Though his income exceeded his expences by at leaſt 500l. a-year, and during the laſt 4 years he had 3000l. a-year, yet his private charities were ſo numerous, that he did not leave above 4000l. at his death. He died at Dublin of a ſpaſmodic affection in his ſtomach, on Tueſday, June 20, 1799, aged 73.

(8.) **MURRAY**, or **ELGINSHIRE**, or **MORAY**, a county of Scotland, extending along the coaſt from the Spey on the E. to Beauly on the W. which is the boundary of Roſs-ſhire. It ſends two members to parliament. The Rev. Mr Shaw, miniſter of Elgin, ſays it produces wheat, barley, oats, rye, peaſe, and beans. Of theſe, in plentiful years, upwards of 20,000 bolls are exported, beſides ſerving itſelf, and ſome of the Highland counties. Some hemp is alſo cultivated, and a great deal of flax; of which linen is made, both for home-conſumption and exportation. Great quantities of potatoes are alſo cultivated. Several hundreds of black cattle are exported. Peculiar to this province is a kind of wood, called *red ſaugh*, or *ſallow*; which is as beautiful as mahogany, much more firm and tough, and reſembles the lighter coloured kind of that wood. It receives a fine poliſh, but is very ſcarce, growing on rocks. But there are great foreſts of firs and birches, which our author thinks are the remains of the *Sylva Caledonia*. Here alſo is found a remarkable root, called by the natives *carmele*. It grows in heaths and birch woods to the ſize of a large nut; and ſometimes there are 4 or 5 roots joined together by fibres. It has a green ſtalk and ſmall red flowers. Dido, ſpeaking of the Caledonians, ſays, *Certum cibi genus parant ad omnia, quem ſi ceperint quantum eſt unius fabæ magnitudo, minime aut ſitire ſolent*. Cæſar alſo tells us of a root called *chara*, which his ſoldiers mixed with milk and made into bread when in want of proviſion, which greatly relieved them. This root, Mr Shaw thinks, is the *carmele* or *ſweet root* of Murray. He ſays he has often ſeen it dried, and kept for journeys through hills where no proviſion was to be had. He has alſo ſeen it pounded and infuſed; it makes a more agreeable and wholeſome liquor than mead. It grows in ſuch plenty, that a cart-load of it can eaſily be gathered. Murray is interſected by the rivers SPEY, LOSSEY, FINDHORN, NAIRN, NESS, and BEAULY. In this country there are alſo many lakes, particularly LOCH NESS, remarkable for never freezing; and DUNDELCHACK for never freezing before January. (See theſe articles.) On the E. ſide of Loch Neſs, a mile above it, is the water-fall of Foher, where the river *Feach-Lin* falls over a ſteep rock about 80 feet high; and a thick fog riſes from the place where it falls, occaſioned by the violent daſhing of the water. There are conſiderable ſalmon-fiſheries on the Spey, Findhorn, Neſs, and Beauly, which ſerve the towns and country, beſides exporting to the value of 12,000 annually. There are many natural caves in the hills, which formerly were the receptacles of thieves and robbers, but now afford ſhelter to hunters and ſhepherds in ſtormy weather. The moſt remarkable mountain is Cairngorm, in Strathſpey. In it are found a particular kind of ſtones well known to the lapidaries. They are of blue, green, yellow, and amber colours; ſome ſo large as to make ſnuff-boxes or ſmall cups; ſome of hexagonal or pentagonal figures, and tapering to a point at each end. The mountain of Benalar, in Badenoch, is by Mr Shaw reckoned the higheſt land in Scotland, as waters flowing from it fall into the ſea at Dundee, Inverlochy, and Garmach, in Murray.

(9.) MURRAY FRITH, a large bay of the German Ocean, on the eaſt coaſt of Scotland, between Tarbert Neſs in Roſs-ſhire on the N. and Borough Head in Murrayſhire on the S.

(10.) MURRAY HARBOUR, a harbour on the E. coaſt of the iſland of St John, in the Gulph of St Lawrence.

(11.) MURRAY ISLANDS, a cluſter of iſlands of Scotland, on the SW. coaſt of Kircudbrightſhire, at the mouth of Fleet Bay, 12 miles NNE. of Burrow Head.

MURRAYA, in botany, a genus of the monogynia order, belonging to the decandria claſs of plants.

MURRAYSHIRE. See MURRAY, N° 8.

* MURRE. *n. ſ.* A kind of bird.—Among the firſt ſort we reckon coots, meawes, *murres*, creyſers, and curlews. *Carew.*

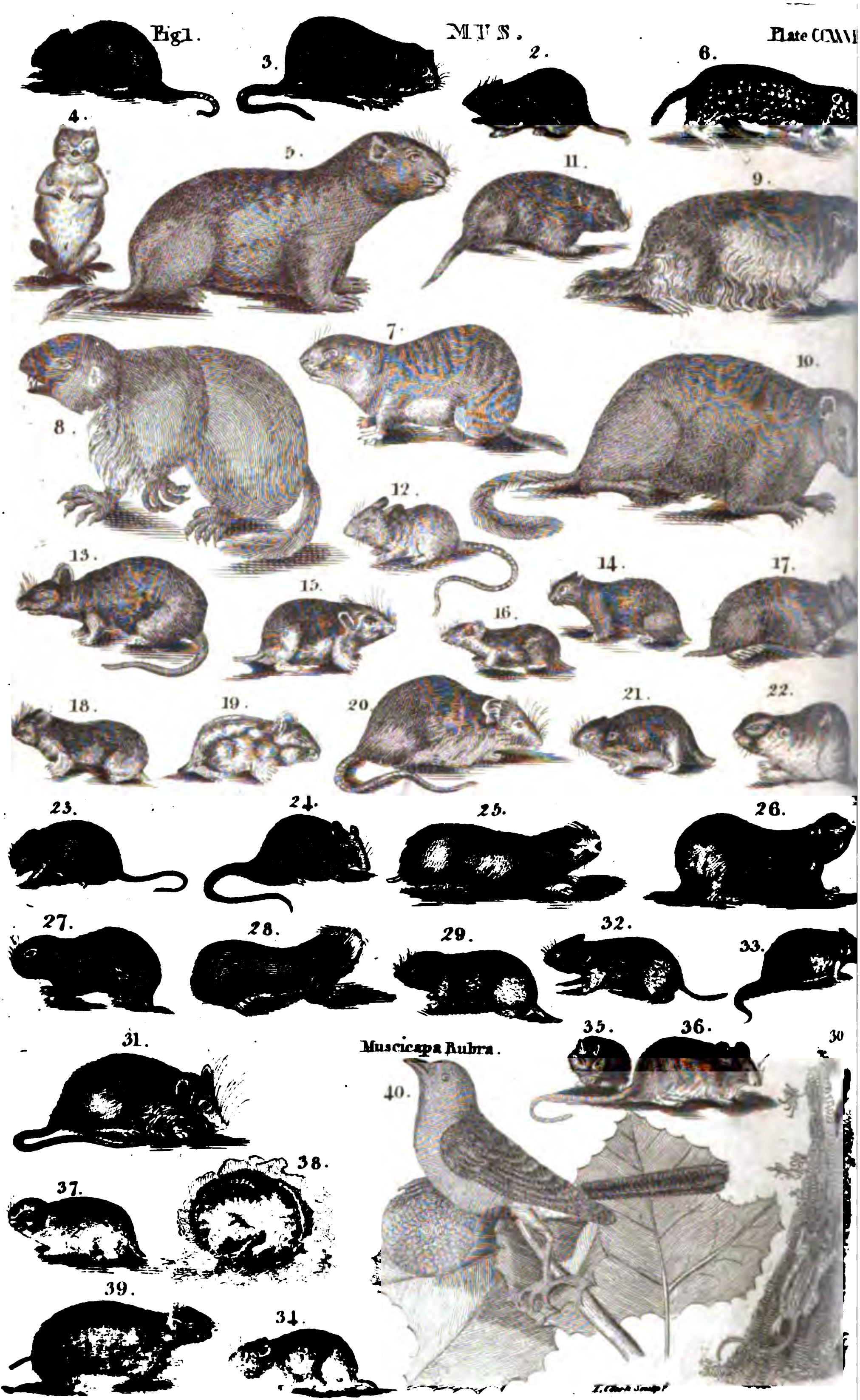
* MURREY. *adj.* [*morée*, Fr. *morello*, Italian; from *moro*, a moor.] Darkly red.—Leaves of ſome trees turn a little *murrey* or reddiſh. *Bacon.*—They employ it in certain proportions, to tinge their glaſs both with red colour, or with a purpliſh or *murrey*. *Boyle.*—Painted glaſs of a ſanguine red, will not aſcend in powder above a *murrey*. *Brown.*—Cornelius jumps out, a ſtocking upon his head, and a waiſtcoat of *murrey*-coloured ſattin upon his body. *Arbuthnot.*

MURRHART. See MURHARD.

MURRHINA VASA, or } Μοῤῥινα, in antiquity,
MURRHINE VESSELS, } a delicate ſort of cups and vaſes brought from the eaſt, which added not a little to the ſplendour of the Roman banquets. Critics are divided concerning the matter of the pocula or vaſa murrhina, or murrea. Some will have them to have been the ſame with our porcelain or china ware. The generality hold them to have been made of ſome precious ſtone, found chiefly, as Pliny ſays, in Parthia and Carmania. Arrian tells us, that there was a great quantity of them made at Dioſpolis in Egypt. This he calls another ſort of murrhine work; and it is evident, from all accounts, that the murrhina of Dioſpolis was a ſort of glaſs ware, made in imitation of the porcelain or murrha of India. Pliny ſays, the murrhina vaſa would not bear hot liquors; but Martial tells us, that they bore hot liquors very well. Some ſuppoſe them to have been of agate, others of onyx, others of coral. Baronius took them to be made of myrrh, congealed and hardened. Some ſuppoſe theſe veſſels to have been made of cryſtal; but this is contrary to the account of all the ancients. The Greeks had the words κρυσταλλος for cryſtal, and σμυρνη for myrrh; and therefore, if theſe veſſels had been made of either of theſe ſubſtances, they would have called them ſmyrna or cryſtallina. On the contrary, the moſt correct among them [illegible] them *murrhina*, MYRRHINA, or MORRINA [illegible] cups made of cryſtal, which were alſo [illegible] thoſe times, were called *cryſtallina*, [illegible] *murrhina* or *murrhæa*, by way of diſtinction. [illegible] Martial ſays, that the ſtone they were m[illegible] was ſpotted or variegated, calling them [illegible] maculoſæ murræ. Statius mentions the [illegible] line and murrhine cups in the ſame ſe[illegible] as different things. Arrian mentions [illegible] λιθος μοῤῥια; which his interpreters [illegible] error of the copies, and would alter into [illegible] rba, the name of gum myrrh. Pompey w[illegible] firſt who brought theſe veſſels out of [illegible] which he exhibited in his triumph, and dedicated to Jupiter Capitolinus. But private perſons [illegible] not long without them. So fond did the Roman gentry grow of them, that a cup which [illegible] three ſextaries was ſold for 70 talents. [illegible]

MICE.

Plate CCXXVI



Muscicapa Rubra.

T. Clark Sculpt

tronius, before his death, to ſpite Nero, broke a baſon, *trulla murrbina*, valued at 300 talents, on which that emperor had ſet his heart.

* **MURRION.** *n. ſ.* often written *morion.* See Morion. *Junius* derives it from *murus*, a wall.] A helmet; a caſque; armour for the head.—

Their beef they often in their *murrions* ſtew'd,
And in their baſket-hilts their bev'rage brew'd.

MURROES. See Muirhouse.

MURSANGE, a town of France, in the dep. of the Cote d'Or, 4½ miles E. of Beaune.

MURSCHINTZ, a town of Upper Saxony in Coburg, 9 miles NE. of Coburg.

MURTEZABAD, a town of Aſiatic Turkey in Natolia, 12 miles NE. of Angura.

* **MURTH** *of Corn. n. ſ.* Plenty of grain. *Ainſ.*

MURU, a ſea-port of Japan, in Niphon.

MURVIEDRO. See Morviedro, N° 1 & 2.

MURVIEL, a town of France, in the dep. of Herault, 7 miles NNW. of Bezleres.

MURZINCI, a town of Ruſſia, in Tobolſk, on the Irtiſch, 40 miles NNW. of Tara.

(I.) **MUS**, the cognomen, or family ſurname of three patriotic Romans of the name of *Decius.* See Decius, N° 2—4.

(II.) **Mus**, in geography, a town of Sardinia, 5 miles W. of Cagliari.

(III.) **Mus**, in zoology, a numerous genus of quadrupeds belonging to the order of *Glires*, called Murine Quadrupeds by Mr Kerr. The characters are theſe: the upper fore-teeth are wedge-ſhaped; there are 3 grinders, ſometimes, though rarely, only two, on each ſide of the jaws; and the clavicles or collar bones are complete. Very great improvements have been made in the arrangement of this genus by modern zoologiſts, ſince the time of Linnæus. The Agouti, *Aſkoko*, Cavy, Dormouse, Guinea Pig, Jerboa, Marmot, &c. which were included by Linnæus under the genus Mus, have, in conſequence of more accurate inveſtigation, been ſeparated from it, and arranged under 5 new genera; viz. Arctomys, Cavia, Dipus, Hyrax, and Myoxus. (See theſe 4 laſt articles in their order.) And even the remaining genera are ſtill ſo numerous, that, in the late edition of Linnæus's *Syſtema Naturæ*, publiſhed by Dr Gmelin, and tranſlated by Mr Kerr, they are ſubdivided into 4 ſections; to which, beſides a kind of *ſubgeneric* character, collective names have been aſſigned, very convenient for diſtinguiſhing the ſpecies of this very numerous genus." Theſe ſections are, I. Myocastores, or Beaver Rats, the individuals of which have tails *flattened laterally* at the ends. II. Mures, or Rats and Mice; which are ſubdivided into, 1. Myosuri, having round naked tails; 2. *Cunicularii*, with round hairy tails. III. Criceti, or Hamsters, having pouches in their cheeks, and ſhort hairy tails. IV. Myotalpæ, or Mole-Rats, called by Dr Gmelin Mures Subterranei, having no external ears, very ſmall eyes, very ſhort tails, or none; and living entirely under ground like moles. Along with the various ſpecies of theſe ſub-genera, which we ſhall now deſcribe in their lexicographical order, we muſt arrange thoſe of the genus of Arctomys, being long paſt that article, in the order of the alphabet.

1. i. **Mus Agarius**, the *ruſtic mouſe*, is about 3 inches long, and ſcarcely weighs half an ounce; the tail is only about half the length of the body and head; the upper part of the body is yellowiſh, with a dark line along the back; the belly and the legs are white; the head is oblong, with a ſharp noſe, and ſmall ears lined with fur; the hind legs have each a duſky circle above the foot. See *Plate* CCXXVIII, *fig.* 1. They inhabit Ruſſia and Sileſia; but are rare in Germany; they are migratory, and wander about in vaſt multitudes, doing immenſe injury to the corn. They burrow in the ground, forming a long gallery juſt below the ſurface, and a little elevated, leading to a larger chamber, in which conſiderable quantities of grain and ſeeds are ſtored up for winter.

ii. **Mus Agrarius Americanus**, a variety of this ſpecies inhabits New York, has cheeks orange-coloured, legs and feet pure white, the hind longer than the fore; very long whiſkers, and large, open, naked ears.

2. **Mus Alliarius**, the *garlic mouſe*, has a ſhort tail, the ears rather large, and ſomewhat hairy; the body aſh-coloured on its upper parts, and whitiſh underneath. See *Plate* CCXXVIII, *Fig.* 2. The head and body meaſure ſomewhat more than 4 inches, the tail ſcarcely an inch and a half. This ſpecies inhabit Siberia, about the rivers Jeniſei, Kan, Lena, and Angara; and feed on the roots of garlic, of which they lay up large ſtores in ſubterraneous burrows.

3. **Mus Americanus**, the *American rat*, has a long, naked, and ſcaly tail; the head is long-ſhaped, with a narrow pointed noſe, the upper jaw being much longer than the lower; the ears are large and naked. It is larger than the black, and ſmaller than the brown rat; its colour is a deep brown, inclining to aſh on the belly, and the fur is coarſe harſh. This ſpecies is ſaid (*Kalm's Travels*, ii. 48.) to live among the ſtones and clefts of rocks, in the blue mountains of Virginia, at a diſtance from the peopled part of the country. They come out only at night, and make a terrible noiſe.

4, i. **Mus Amphibius**, the water rat, with a long tail; the upper parts of the body are covered with black hair mixed with yellowiſh, and the under parts aſh-coloured; the ears ſcarcely appear above the fur; the feet have 3 toes each, and the rudiments of a 4th. (See *Fig.* 3.) This ſpecies, of which there are ſeveral varieties, differing in the toes and in the colour, inhabit all Europe, the N. part of Aſia as far as the icy ſea, and North America.—They dwell chiefly near waters, forming burrows in their ſteep banks; about ponds and ditches; likewiſe in marſhy places, meadows, and gardens; feeding on roots, herbs, and ſhrubs; and on frogs, craw-fiſh, inſects, ſmall fiſh, and the fry of larger ones. They ſwim and dive with great facility, and live much in the water. They are very fierce, and bite ſeverely. Their fleſh is reckoned very delicate by the ſavage inhabitants of Ruſſia; and is eaten by the French along with that of the otter, in Lent. The female is ſmaller than the male, and is yellower; ſhe has 8 teats, 4 of which are placed on the breaſt, and 4 on the belly. They procreate about the end of winter, when they ſmell ſtrongly of muſk, and produce 8 young ones in April. There are other 4 varieties, viz.

ii. Mus Amphibius Maculatus, the ſpotted water rat, has a large white ſpot on the back, and a white line on the breaſt.

iii. Mus Amphibius niger, uniformly black.

iv. Mus Amphibius paludosus, the marſh water rat, of a black colour, with a hairy tail, and ears ſhorter than the fur.

v. Mus Amphibius terrestris, the meadow water rat, has a hairy tail, 4 toes on the fore feet, and 5 behind.

Mus Arctomys, the Marmot. The characters of this genus are, two wedge-like cutting teeth in each jaw; 5 grinders above, and 4 below, on each ſide; and perfect clavicles or collar-bones.

5. Mus Arctomys Bobac, the *Poliſh marmot*, is of a greyiſh colour, mixed with long duſky hairs on the upper parts of the body, the under parts yellowiſh. It has ſmall oval ears, ſmall eyes, a hairy ſtraight tail, and the fore feet have each a claw in place of the thumb or 5th toe. (See *Fig.* 4 and 5.) The head and body meaſure 16 inches, the tail 4½. This ſpecies inhabit the dry and ſunny places of the mountains, from the Boriſthenes through the temperate climes of Aſia as far as China and Kamtſchatka. They form very deep burrows, in which ſocieties of 20 or more live together, each individual having a particular neſt at the bottom of the common gallery, which is often 3 or 4 yards deep, and from which numerous paſſages branch off to the ſeveral apartments. They go about in ſearch of food in the morning and middle of the day, placing a centinel to give warning of danger. They are timid animals, and feed only on vegetables, chiefly oleraceous plants. They ſit up on their hams, and carry their food with the fore paws to their mouths, and defend themſelves in the ſame poſture. They may be eaſily tamed even when old; they eat cabbages or bread, and lap milk; but refuſe water. In ſummer they feed voraciouſly; but remain torpid all winter, except when kept in very warm places: and even then eat very little; and eſcape if poſſible, that they may get to ſome place proper for hybernating; but return to their maſter in ſpring. The fleſh reſembles that of a hare, though rank; the fat is uſed for dreſſing leather and furs; and the ſkins are uſed as clothing by the Ruſſians. The female has 8 teats; and brings forth early, as in June the young ones are half grown.

6. Mus Arctomys Citillus, the earleſs marmot, or Zizel of Buffon, is of a variable colour, has a convex head, no external ears, and a ſhort hairy tail. This ſpecies inhabits the S. parts of Ruſſia as far as Kamtſchatka, and the iſlands between Aſia and America; is found in Perſia and China; but is rarely met with in the reſt of Europe. They dwell in open, high, dry, and uncultivated places, preferring turfy and loamy ſoils, near the high roads, and never frequent bogs or woods. Each individual has its ſeparate burrow, in which, for proviſion in the beginning and end of winter, it lays up magazines of grain, tender vegetables, and berries; and ſometimes, though rarely, the carcaſes of mice and ſmall birds. In winter theſe animals lie torpid during the greateſt ſeverity of the froſt. In ſpring, as ſoon as the weather becomes mild, they go out in the day-time in queſt of food, which they eat ſitting on their haunches, carrying it in their fore paws to their mouth. The male is very eaſily tamed; but the female is leſs ſo, being fiercer, and more apt to bite: ſhe goes between 3 and 4 weeks with young, and brings forth from 3 to 8 young ones about the beginning of May. The fur is very good in ſpring, and the fleſh is tolerable. They are preyed on by polecats, weaſels, hawks, carrion crows, and cranes. They vary conſiderably both in ſize and colour, being ſometimes as large as the common marmot, and ſometimes no larger than the water rat. In general the colour is a yellowiſh aſh on the upper parts, and dirty white on the belly; ſometimes variegated either with waves or ſmall ſpots of white; when it is called *Souſlik* by Buffon. Some are white on the upper parts, and waved with tawny or yellow, being pale yellow on the lower parts of the body, and having a longiſh tail, with ſhed hair like that of a ſquirrel: others are of a grey colour on the upper parts of the body, ſpotted with white; the under parts being of a yellowiſh white with white orbits, and the face, between the eyes and the noſe, of a browniſh yellow, with a ſhort tail. See *Fig.* 6 and 7.

7. Mus Arctomys Empetra, the *Canadian marmot*, is of a mixed grey colour on the upper parts of the body; the lower parts orange; having ſhort rounded ears, and a hairy tail. It is rather larger than a rabbit, and the tail is about 2½ inches long; the head is round, with a blunt noſe, and ſhort rounded ears; the cheeks are full, and of a grey colour; the face is duſky, with a black noſe; the hair on the back is grey at the roots, black in the middle, and whitiſh at the tips; the belly and legs are of an orange colour; the feet are black and naked, having 4 long, ſlender, divided toes, and the rudiments of a thumb on each fore foot, and 5 ſimilar on each behind, all armed with pretty ſtrong claws. This ſpecies was deſcribed by Mr Pennant from a living ſpecimen in poſſeſſion of Mr Brooks, which was very tame, and made a hiſſing noiſe. They inhabit Canada, Hudſon's Bay, and the other N. parts of America. See *Fig.* 8.

8. Mus Arctomys Gundi, is of a brick red colour, with wide open ears; is about the ſize of a ſmall rabbit, and inhabits Barbary.

9. Mus Arctomys Hudsonia, is of a brown aſh colour, with ſhort ears, but no tail; and inhabits Hudſon's Bay.

10. Mus Arctomys Marmota, the common Marmot, has ſhort round ears; gibbous cheeks; a ſhort hairy tail; the upper parts of the body of a duſky brown colour, and the lower parts reddiſh. The body and head meaſure 16 inches, the tail 6. (See *Fig.* 9.) This ſpecies inhabits the ſummits of the Alps and Pyrenean mountains, in dry places where there are no trees. They are more ſubject to be rendered torpid by cold than any other. In the end of September, or beginning of October, they retire into their hole, from which they come not out till April. Their retreat is capacious, broader than long, and very deep, ſo that it can contain ſeveral marmots without danger of corrupting the air. With their feet and claws, which are admirably adapted for the

purpoſe, they dig the earth with ſurpriſing quickneſs, and throw it behind them. It is not a hole, or a ſtraight or winding tube, but a ſpecies of gallery made in the form of a Y, each branch of which has an aperture, and both terminate in one where the animal lodges. As the whole is made on the declivity of a mountain, the innermoſt part alone is on a level. Both branches of the Y are inclined; and the one is uſed for depoſiting the excrements of the animals, and the other for their going out and coming in. The place of their abode is well lined with moſs and hay, of which they make ample proviſion during the ſummer. It is ſaid, that this labour is carried on jointly; that ſome cut the fineſt herbage, which is collected by others; and that they alternately ſerve as vehicles for tranſporting it to their dens. One, it is ſaid, lies down on his back, allows himſelf to be loaded with hay, extends his limbs, and others trail him in this manner by the tail, taking care not to overſet him. Theſe repeated frictions are aſſigned as the reaſon why the hair is generally rubbed off their backs. But, whatever may be in this, it is certain that they dwell together, and work in common at their habitations, where they paſs three-4ths of their lives. Thither they retire during rain, or upon the approach of danger; and never go out but in fine weather, and even then to no great diſtance. One ſtands centinel upon a rock, while the others ſport on the graſs, or are employed in cutting it to make hay. When the centinel perceives a man, an eagle, a dog, &c. he alarms the reſt with a loud whiſtle, and is himſelf the laſt to enter the hole. They make no proviſion for winter; nor have they, in that ſeaſon, occaſion for any, as they lie aſleep all that time. As ſoon as they perceive the firſt approaches of the ſleeping ſeaſon, they ſet to work in ſhutting up the two entrances of their habitation; and this they perform with ſuch labour and ſolidity, that it is eaſier to dig the earth any where elſe than in the parts they have fortified. They are at this time very fat, weighing ſometimes 20 lb. and they continue to be plump for 3 months; but afterwards they gradually decay, and are extremely emaciated at the end of winter. When diſcovered in their retreats, they are found rolled up in the form of a ball, covered with hay; and they are carried off in ſo torpid a ſtate, that they may be killed without ſeeming to feel pain. When taken young, they may be rendered nearly as tame as other domeſtic animals. They are able to walk on their hind feet, ſit up often on their haunches, and carry food to their mouths with their fore feet. They learn to ſeize a ſtick, to dance, to perform various geſticulations, and to obey the voice of their maſter. Like the cat, the marmot has an antipathy againſt dogs. When he begins to be familiar in the houſe, and perceives that he is protected by his maſter, he attacks and bites dogs of the moſt formidable kind. Though not ſo large as a hare, he is ſtouter, and his ſtrength is aided by a peculiar ſuppleneſs and dexterity. With his fore teeth, which are pretty long, he bites moſt cruelly; he attacks not, however, either dogs or men, unleſs irritated. If not prevented, he gnaws furniture and ſtuffs; and when confined, pierces even through wood. His voice reſembles the murmuring of a young dog, when careſſed or in a ſporting humour; but when irritated or frighted, he makes a whiſtling noiſe, ſo loud and piercing, that it hurts the ear. The marmots eat every thing preſented to them; as fleſh, bread, fruit, roots, pot herbs, may-bugs, graſs-hoppers, &c. but they prefer milk and butter to every other aliment. Though leſs inclined to theft than the cat, they ſlip into the dairy, and drink great quantities of milk, making, like the cat, a purring noiſe expreſſive of pleaſure. Milk is alſo the only liquor that is agreeable to them; for they rarely drink water, and refuſe wine. They procreate but once a year; and the female, after 3 or 4 weeks, produces 3 or 4 young. The growth of their young is very quick; they live only 9 or 10 years; and the ſpecies is neither numerous nor much diffuſed. They are eaſily caught on plain ground, but with difficulty in their holes, as they dig deeper when in danger of being taken, except in winter when torpid; when they are caught in great numbers. They are ſearched for partly on account of their fleſh, which is tender and delicate; partly for their ſkins; and partly for their fat, which is eſteemed medicinal by the inhabitants of the Alps: but they are chiefly taken by the Savoyards for the purpoſe of being expoſed as ſhows in Europe. The marmot would make very good eating, were it not for its diſagreeable flavour, which can only be concealed by ſtrong ſeaſonings.

11. **Mus Arctomys Maulina**, the Chileſe marmot, is reddiſh brown, with ſharp ears, 5 toes on all the feet, and inhabits Maule in Chili.

12. **Mus Arctomys Monax**, the *American marmot*, is about the ſize of a rabbit. It has ſhort rounded ears; the noſe and cheeks are bluiſh; the body is of a deep brown colour; the tail is longiſh, and very hairy. (See *Fig.* 10.) This ſpecies inhabits the warmer ſtates of North America and the Bahamas. They form holes in the clefts of rocks, and under the roots of trees, in which they paſs the winter in a torpid ſtate; though it is uncertain if thoſe of the Bahamas hybernate. They feed on vegetables; and their fleſh is very good, reſembling that of a pig.

13. **Mus Arctomys Pruinosa**, the hoary marmot, is about the ſize of a rabbit, has very coarſe long hoary fur, whitiſh cheeks, black noſe and legs, with oval ears, and inhabits N. America.

14. **Mus Arctomys Suslica**, the **Souslik**, is yellowiſh brown with numerous white ſpots; the ears are ſhort, and tail hairy. They inhabit Caſar, and as far as Auſtria, and dig winding burrows in mountains, 7 or 8 feet long, wherein they lay up ſtores of grain, roots, &c.

15. **Mus Arctomys Zemni**, the **Zemni**, or *Podolian Marmot* of Pennant, is of a mouſe-grey colour, has ſhort round ears, 5 toes on all the feet, very ſmall eyes, and inhabits Ruſſia and Poland. It eats voraciouſly, and bites ſeverely.

16. **Mus Arvalis**, the *meadow mouſe*, is from 3 to 6 inches long, the female being much longer than the male, and the tail is little more than an inch: the head is large, with a blunt noſe, ſhort ears almoſt hid in the fur, and prominent eyes; the upper parts of the body are of a mixed ferruginous and black colour; the belly is deep aſh, and the legs and feet duſky; the tail is terminated

by a ſmall tuft of hair. (See *Fig.* 11.) There is a variety which is almoſt black. This ſpecies inhabits all Europe, Siberia, Hyrcania, and Newfoundland; dwelling in buſhy places, corn fields, meadows, and gardens, chiefly near waters; living on grain, nuts, acorns, and walnuts, which they collect into ſubterraneous burrows; but prefer corn to every other food. When the grain is ripe, they aſſemble from all quarters, and often do great damage by cutting the ſtalks of corn to get at the ears. They follow the reapers, and eat up all the fallen grain. When the gleanings are devoured, they flock to the new-ſown fields, and eat up the ſeed. In winter moſt of them retire into the woods, where they feed upon filberts, acorns, and ſeeds of trees. In ſome years they appear in numbers ſo immenſe, that they would deſtroy every thing if they continued long; but they always kill and eat one another during a ſcarcity. They are alſo devoured by the long-tailed field-mice, by foxes, wild cats, and weaſels. They are often carried home in ſheaves of corn, and 100 of them have been found in houſing a rick. In ſuch caſes, it has been obſerved, that the dogs devoured all the mice of this ſort they could find, rejecting the common kind; while cats would touch none but the laſt. The female produces ſeveral times a-year, and brings from 8 to 12 young at a birth: it has a ſtrong affection for them; one that was ſeduced into a wire-trap by placing its brood in it; was ſo intent on foſtering them, that it appeared quite regardleſs of its captivity. In Newfoundland, theſe mice are very deſtructive to gardens; but ſeldom do much damage in Britain.

17. Mus Barbarus, the *Barbary mouſe*, is leſs than the common mouſe, has 3 toes before, and 5 behind, tail of a middle length, naked and annulated. The body is brown.

18. Mus Betulinus, the *beech mouſe*, has a conſiderable reſemblance to the wandering mouſe, (No. 58.) but is ſomewhat ſmaller. The upper parts of the body are tawny, with a black line along the back, the under parts whitiſh, or pale aſh colour; the noſe is ſharp, with a red tip; the ears are ſmall, oval, plaited, brown, and briſtly at the ends; the limbs are very ſlender, with long and very ſeparable toes; the tail is ſlender, and much longer than the body. (See *Fig.* 12.) This ſpecies inhabit the birch woods in the deſert plains of Iſchim and Baraba, and between the Oby and Jeniſei. They live ſolitary, frequenting the hollows of decayed trees. They run up trees readily, and faſten on their branches by the tail; and by their ſlender fingers, can faſten even to a very ſmooth ſurface. They are very delicate, ſoon growing torpid in cold weather; and their voice is very weak.

19. Mus Caraco has a naked tail, long, ſcaly, and ſomewhat blunt; the body is of a brown grey colour, and the hind feet are very ſlightly webbed. (See *Fig.* 13.) They inhabit the E. parts of Siberia, Chineſe Tartary, and the N. provinces of China; burrowing like rabbits near the banks of rivers. They ſwim remarkably well, and infeſt houſes. The body and head are 6 inches long, and the tail 4 and a half.

20. Mus Cricetus Acredula, the *Siberian hamſter*, has large oblong oval furrowed ears: the upper parts of the body are of a yellowiſh and brown aſh-colour, the under parts hoary. (See *Fig.* 14.) The head and body meaſure 4 inches, and the tail near one. This ſpecies inhabit the diſtrict of Orenburgh in Siberia, near the Yaik or Ural. They live in burrows, which they quit only in the night for food. The Coſſacks ſay, they migrate out of the deſerts in vaſt multitudes; but Dr Pallas ſuſpects this to be a miſtake.

21. Mus Cricetus Arenarius, *the ſand hamſter*, has the upper parts of the body hoary; the ſides, belly, limbs, and tail, pure white. (See *Fig.* 15.) It inhabits the ſandy deſerts of Baraba, on the Irtiſh, in Siberia. The head is large, with a longiſh ſnout and a ſharp noſe, having very long whiſkers, very large pouches, and great oval browniſh ears; the body is ſhort and thick, about 4 inches long, and the tail rather more than one; the fur is very ſoft; the fore feet have only 4 toes each, the hind feet 5, all the claws being white. Theſe animals are very fierce and untameable; form burrows, are chiefly active at night, and feed moſtly upon leguminous plants.

22. Mus Cricetus Furunculus, the *Baraba hamſter*, has the upper parts of the body of a cinereous yellow, with a black ſtreak on the back; the under parts dirty white. It is about 3 inches long, and the tail near one. (See *Fig.* 16.) This ſpecies inhabits Dauria, Siberia in the deſert of Baraba, towards the Ob, between the Onon and Argum, and in the Chineſe empire near lake Dalai; living chiefly on the ſeeds of the aſtragalus and atriplex; their manners are unknown.

23. i. Mus Cricetus Germanicus, the *German hamſter*, is the moſt deſtructive of the whole rat tribe. The bodies of the males are about 10 inches long, and the tail about 3, but the females are ſcarcely more than half ſo large: the former weigh from 12 to 16 oz., the latter ſeldom above from 4 to 6. The head is thick, with a blunt noſe, and numerous whiſkers, large full black eyes, and large rounded open ears; the head and back of a reddiſh brown colour, with red cheeks; the ſides paler, with 3 white ſpots; the breaſt, upper part of the fore legs, and belly, are black; the feet large and white, with 4 toes, and a claw on the fore feet, and 5 toes on each hind foot. (See *Fig.* 17.) Sometimes, though rarely, they are entirely white or yellowiſh, or white with black ſpots on the back; ſometimes the ſnout is white, and the forehead aſh-coloured, or the lower jaw of a white colour. This ſpecies inhabit Siberia, the S. of Ruſſia, Poland, Sclavonia, Hungary, Sileſia, Bohemia, and Germany beyond the Rhine, eſpecially in Thuringia. Each individual forms a ſubterraneous burrow, conſiſting of ſeveral chambers, with two holes leading from the ſurface; one of theſe is perpendicular, and the other, for their excrements, is oblique; the holes of the females have ſeveral perpendicular openings, and each young one is lodged in a ſeparate chamber. Theſe chambers are lined with ſtraw or graſs; the reſt are larger, and filled with grain, beans, peaſe, lintſeed, vetches, and other ſeeds, each in a ſeparate cell. The chambers of the elder animals are dug ſeveral feet deep, while thoſe of the younger ſeldom exceed a foot under the ſurface. The hamſter ſleeps during winter; when in a torpid

ſtate, no reſpiration nor feeling can be perceived. The heart, however, beats 15 times in a minute. The blood continues fluid, but the inteſtines are not irritable; even an electrical ſhock does not awake him; but in the open air he never becomes torpid. When dug up in his ſtate of torpidity, the hamſter is found with his head bent under his belly between the two fore legs. The eyes are ſhut; and when the eye-lids are forced open, they inſtantly cloſe again. The members are ſtiff, like thoſe of a dead animal, and the whole body feels as cold as ice. When diſſected during this ſtate, he ſeems to feel very little; ſometimes, indeed, he opens his mouth as if he wanted to reſpire; but his lethargy is too ſtrong to admit of his awakening entirely. This hath been aſcribed to a certain degree of cold. But experience ſhews, that, to render the hamſter torpid, he muſt alſo be excluded from all communication with the external air; for when he is ſhut up in a cage filled with earth and ſtraw, and expoſed in winter to a degree of cold ſufficient to freeze the water, he never becomes torpid: but when the cage is ſunk 3 or 4 feet under-ground, and well ſecured againſt the acceſs of the air, at the end of 8 or 10 days he is as torpid as if in his own burrow. If the cage is brought up to the ſurface, the hamſter will awake in a few hours, and reſume his torpid ſtate when put below the earth. The experiment may be repeated as long as the froſt continues. The hamſter, in paſſing from a torpid to an active ſtate, firſt loſes the rigidity of his members, and then makes a profound reſpiration, but at long intervals. His legs begin to move, he opens his mouth, and utters diſagreeable and rattling ſounds. After ſome time, he opens his eyes, and endeavours to raiſe himſelf on his legs. But all theſe movements are ſtill reeling and unſteady, like thoſe of a man intoxicated. He, however, reiterates his efforts till he is able to ſtand on his legs, and gradually begins to walk, eat, and act in his uſual manner. This paſſage from a torpid to an active ſtate requires more or leſs time, according to the temperature of the air. When expoſed to a cold air, he ſometimes requires more than two hours to awake; but in a temperate air he will awake in leſs than one. The hamſter is very miſchievous, and ſo exceedingly fierce, that he ſeems to have no other paſſion but rage. He attacks every other animal that comes in his way, without regarding the ſuperior ſize and ſtrength of his antagoniſt; and even allows himſelf to be beat to pieces with a ſtick rather than yield. If he ſeizes a man's hand, he muſt be killed before he quits his hold. When the hamſter perceives a dog at a diſtance, he begins with emptying his cheek pouches, if filled with grain, which are ſo capacious as to hold a quarter of a pint Engliſh. He then blows them up ſo prodigiouſly, that the ſize of the head and neck exceeds that of the body. He then raiſes himſelf on his hind legs, and in this attitude darts on his enemy. If he catches hold he never quits it but with life. But the dog generally ſeizes him behind, and ſtrangles him. This ferocious temper leads him even to deſtroy his own ſpecies, not excepting the females. When two hamſters meet they fight, and the ſtronger always devours the weaker. A combat between a male and a female laſts longer than between two males. They begin by purſuing and biting each other; then each retires to take breath; a little after, they renew the combat, and continue to fly and fight till one of them falls. The hamſters copulate about the end of April; when the males enter the apartments of the females, where they remain only a few days. If two males meet in the ſame hole, a furious combat enſues, which terminates in the death of the weakeſt. The conqueror takes poſſeſſion of the female; and both, though at every other period they kill each other, lay aſide their natural ferocity during the few days their amours continue. They even mutually defend each other againſt aggreſſors; and if a hole is opened about this time, the female defends her huſband with the utmoſt fury. The females bring forth twice or thrice a-year. Their litter is from 6 to 18. Their growth is very rapid. At the age of 15 days they begin to dig the earth; and ſoon after, the mother baniſhes them from her habitation: ſo that at the age of about 3 weeks they are abandoned to their own management. The mother diſcovers little affection for her offspring; and when her hole is opened, flies in the moſt daſtardly manner, leaving her young ones to periſh. Her only ſolicitude is to provide for her own defence, by digging deeper into the earth, which ſhe performs with amazing quickneſs. The young would willingly follow her; but ſhe is deaf to their cries, and even ſhuts the hole. The hamſters feed upon all kinds of herbs, roots, and grains, and eat the fleſh of ſuch animals as they can conquer. They are fond of liquorice, and feed much on its ſeeds. Their pace is very ſlow, and they do not climb; but they dig with vaſt quickneſs, and will gnaw through a piece of wood an inch and a half thick in a very ſhort time. As they are not formed for long journeys, their magazines are firſt ſtocked with the proviſions neareſt their abode. When the harveſt is reaped, they go to a greater diſtance in queſt of proviſions, and carry every article they can find to their granaries. To facilitate the tranſportation of their food, they have two pouches in the inſide of each cheek. On the outſide, theſe pouches are membranous, ſmooth, and ſhining; and in the inſide there are many glands, which ſecret a certain fluid, to preſerve the flexibility of the parts, and to enable them to reſiſt any accidents, which may be occaſioned by the rougneſs or ſharpneſs of particular grains. Each of theſe receptacles is capable of containing an ounce and a half of grain, which, on his return to his lodgings, the animal empties, by preſſing his two fore feet againſt his cheeks. A hamſter, having his cheeks filled with proviſions, is eaſily ſeized with the hand, without the riſk of being bitten, as in this condition he has not the free motion of his jaws. But in a little time, he ſoon empties his pouches, and ſtands upon his defence. The quantity of proviſions found in the holes depends on the age and ſex of the inhabitant. The old hamſters often amaſs 100 lb. of grain. Their object in laying up proviſions, is not to nouriſh them during winter, which they paſs in ſleep, and without eating; but to ſupport them previous to their falling into that ſtate, which reſembles a profound ſleep, and after they awake in ſpring. At the approach of winter, the hamſters retire into their ſubterraneous abodes, the entrance to which they carefully ſhut up. Here they repoſe upon a bed of ſtraw, and in this ſtate are commonly dug up. They are preyed on by polecats, weaſels, cats, dogs, foxes, and birds of prey; and are proſcribed by man. In winter the peaſants generally go a *hamſter-neſting*, as they call it; the retreat is known by a ſmall eminence of earth raiſed near the oblique paſſage above deſcribed. The peaſants dig down till they diſcover the hoard, and are generally well paid for their trouble; as they often find two buſhels of corn, beſides the ſkins of the animals, which are valuable furs; and the hair ſticks ſo faſt to the ſkin, that it cannot be plucked off without great difficulty. In ſome ſeaſons the hamſters are ſo numerous, that they occaſion a dearth of corn. In one year about 11,000 ſkins, in a 2d, 54,000, and in a 3d, 80,000, were brought to the town-houſe of Gotha, to receive a reward for their deſtruction. They are likewiſe deſtroyed by a paſte, formed of honey and flour, boiled up with arſenic or powdered hellebore.

ii. Mus Cricetus Germanicus niger, the black *German hamſter*, is a variety, which is entirely black, except the tip of the noſe, edges of the ears, and the feet, which are white. (See *Fig.* 39.)

24. Mus Cricetus Phæus, the *rice hamſter*, or Zarizyn Rat of Pennant, has the upper parts of the body aſh-colour, with long duſky hairs along the back; the ſides whitiſh; the circumference of the mouth, breaſt, belly, and extremities of the limbs, pure white. It is about 3½ inches long, and the tail ſcarcely one inch. (See *Fig.* 18.) This ſpecies inhabit about Zarizyn in the deſerts of Siberia, and in the mountains of the N. of Perſia; where they do vaſt miſchief in the rice fields. They are often caught in traps during winter, near ſtables and other out-houſes, and never become torpid.

25. Mus Cricetus Songarus, the *ſongar hamſter*, has the upper parts of the body of a grey aſh-colour, marked with a black line along the back; the ſides of the head and body are varied with large white and dark brown ſpots; the feet and belly are white. It is about three inches long, with a very ſhort, thick, blunt, and hairy tail, little more than one 3d of an inch long. (See *Fig.* 19.) They inhabit the deſert of Baraba, near the Irtiſh, in Siberia; where they dig chambers for proviſions. They are not, however, ſo fierce as ſome other ſpecies, but may be tamed when caught young, and grow very familiar.

26. Mus Cyanus, the *blue mouſe*, reſembles the field mouſe, except in colour; the upper parts are blue, and the under whitiſh, the ears are rounded. They inhabit Chili, form large burrows divided into chambers, in which they collect great ſtores of bulbous roots; for which the Chileſe ſearch for them.

27. Mus Decumanus, the *brown rat*, has a long, naked, ſcaly tail; the upper parts of the body are of a light brown, mixed with tawny and aſh colour, the lower parts dirty white. The head and body meaſure about 9 inches; and the length of the tail, which conſiſts of 200 rings, is 7½. The whiſkers are larger than the head; and the eyes are large, black, and prominent. The fore feet have 4 toes, with a ſmall claw or thumb. (See *Fig.* 20.) They inhabit India and Perſia, but were not known in Europe till the 18th century. They dwell in burrows on the banks of rivers; and frequent towns, aqueducts, drains, neceſſaries, ſtables, barns, gardens, fields, and houſes. They ſwim and dive with great dexterity; feed on vegetables, grain, fruits, and poultry; and are hunted eagerly by cats, dogs, and ferrets. They lay up ſtores of acorns, beech-maſt, and other proviſions, in their holes; in which the males remain during winter, except in fine weather, without hybernating; but the females and their young live moſtly in barns and out-houſes in that ſeaſon. They often emigrate in great companies. The female produces three times in the year, from 12 to 19 at a litter. Their bite is not only ſevere, but dangerous, the wound being immediately attended with great ſwelling, and ſlow in healing. Theſe animals are ſo bold as to turn upon thoſe who purſue them, and faſten on the ſtick or hand of ſuch as offer to ſtrike them. This ſpecies is ſuppoſed to be the *mus Caſpicus* of Ælian (*Var. Hiſt.* c. 17.) which he ſays was nearly as large as the ichneumon, and made periodical viſits in vaſt multitudes to the countries which border on the Caſpian, ſwimming boldly over the rivers, holding by each others tails.

28. Mus Glareolus, the *Laland mouſe*, a ſpecies, ſaid by Muller to be found in the iſle of Laland, and figured by Schreber (iv. t. cxc. B.) but not deſcribed.

29. Mus Gregalis, the *Gregarious mouſe*, has a ſhort tail; the ears are longer than the fur; the fore feet have each 3 toes and the rudiments of a 4th; the fur is dark aſh-coloured on the upper parts, and whitiſh below. This ſpecies is leſs than the economic mouſe (N° 47.) and longer than the ſocial (N° 53.); the female being 5 inches long and the male 4. They inhabit the E. parts of Siberia, where they dwell in arid places, forming burrows with numerous openings directly under the ſod; theſe lead to chambers in which they lay up large ſtores of roots, eſpecially thoſe of the lilium pomponii and garlic. They eat ſitting up.

30. Mus Hudsonius, the *Labradore mouſe*, has a very ſhort tail, no ears, feet with 5 toes each; the back has a duſky ſtripe; the ſides a tawny line; the breaſt and belly are whitiſh. It inhabits Labradore.

31. Mus Lagurus, the *rambling mouſe*, has hardly any tail; the ears are ſhorter than the fur; the fore feet have each 3 toes, and the rudiments of a 4th; the upper parts of the body are aſh-coloured mixed with duſky, and have a black line along the back. The head is long, with rough and ſwelling lips, the limbs are ſhort and ſlender, and the length of the body and head is between 3 and 4 inches. (See *Fig.* 21.) This ſpecies inhabits the deſarts near the rivers Ural, Irtiſh, and Jeniſei. Each individual forms a round neſt of dried graſs in a burrow, having an oblique and a perpendicular entrance. They feed chiefly on the dwarf iris; but eat all kinds of grain, and devour other ſpecies of this genus, as well as one

another. They ſleep very much, in a rolled-up form, and are very ſlow in their motions, like the marmot; but do not become torpid in winter. The males are very ſalacious, and fight for the females; the conqueror generally devours the vanquiſhed. The females ſmell of muſk when in ſeaſon, produce ſeveral times in the year, and bring 5 or 6 young ones at a birth. They migrate in great troops; whence the *name* given them by the Tartars, which ſignifies *rambling*.

32. Mus Laniger, the *woolly mouſe*, with woolly fur of an aſh-colour, inhabits Peru and the N. parts of Chili. They burrow in the earth, are very docile and cleanly, and eaſily tamed; they live on bulbous roots, eſpecially onions; the females breed twice a-year, and bring 5 or 6 young ones at each litter. They are about ſix inches long, with a ſhort noſe, and ſmall ſharp-pointed ears; the fur is very long and exceedingly fine, almoſt like the threads of a ſpider's web, and was formerly employed as the very fineſt ſpecies of wool by the Peruvians.

33, i. Mus Lemmus, the *lemming*, has a very ſhort tail: The head is pointed, having very long whiſkers, ſix of the hairs on each ſide being longer and ſtronger than the reſt, the mouth is ſmall, having two very long foreteeth in each jaw, and the upper lip is divided; the eyes are ſmall and black; the ears are ſhorter then the fur, rounded, and reclined backwards; the fore legs are very ſhort, having 4 ſlender hairy toes on each, and a long ſharp claw like a cock's ſpur in place of the 5th; the hind feet have 5 toes; the ſkin is very thin, and the upper parts of the body are black and tawny, diſpoſed in irregular blotches; the belly is white tinged with yellow. The length from noſe to tail is about 5 inches; of the tail half an inch. Theſe ſingular animals inhabit the mountains of Norway and Lapland. They feed on graſs, the catkins of the dwarf birch, the lichen rangiferinus, and other vegetables; in ſummer they form ſhallow burrows under the turf, and in winter they make ſimilar long paſſages under the ſnow in queſt of food; for as they do not lay up magazines, and do not hybernate, they are obliged to ſearch for proviſions in the rigorous winter of theſe northern climes. When they foreſee, by ſome wonderful inſtinct, the approach of a very ſevere winter, they leave their northern haunts in autumn, and emigrate in immenſe multitudes into the lower parts of Norway and Sweden, keeping a ſtraight line in ſpite of every obſtacle, moving moſtly in the night time, and making prodigious havock of every vegetable they are able to reach. In this journey, which takes place at uncertain intervals, though generally once every ten years, they are deſtroyed by eagles, hawks, foxes, and other animals of prey, and numbers are drowned in paſſing rivers or lakes, which never interrupt their courſe, even proceeding on into the ſea: from all theſe concurring cauſes very few live to return to their native mountains, and thus a check is put to their ravages, as it takes years to repair their numbers ſufficiently for another migration. They are bold and fierce, ſo as even to attack men and beaſts, if they meet them in their courſe; and bite ſo hard as to allow themſelves to be carried a conſiderable way, hanging by their teeth to a ſtick, before they will quit their hold. The female breeds ſeveral times in the year, producing 5 or 6 young at a birth: ſometimes they bring forth during their migration, when they carry their young in their mouths or on their backs. See *fig.* 22.

ii. Mus Lemmus Sibiricus, the Siberian lemming, is a variety of a ſmaller ſize, and more uniform tawny colour, than the above. It inhabits the N. parts of the Uralian Mountains, and on the Oby. It differs greatly in manners from the former: for it lays up in its burrows large ſtores of proviſions to ſerve during winter; whence it is probable that it does not migrate.

34. Mus Lenæ, is white, has a ſhort tail, covered with coarſe hair, rounded ears, 5 toes before, and 4 behind, and inhabits the coaſt of the icy ſea, near the Lena.

35. Mus Messorius, the *harveſt mouſe*, or *leſs long tailed field mouſe*, is a very ſmall ſpecies, perhaps a variety of the Sylvaticus, (Nº 56.) and inhabits Hampſhire, where it is very numerous, particularly in harveſt. They form their neſts above the ground, between the ſtraws of the ſtanding corn, and ſometimes in thiſtles; they are of a round ſhape, and compoſed of the blades of corn. They bring about 8 young ones at a time. They never enter houſes; but are often carried, in the ſheaves of corn, into ricks: and 100 of them have often been found in a ſingle rick on pulling it down to be houſed. Thoſe that are not thus carried away in the ſheaves, ſhelter themſelves in winter under ground, and burrow deep, forming a warm bed of dead graſs. They are the ſmalleſt of the Britiſh quadrupeds; the length from noſe to tail is only 2½ inches; the tail two inches, and the weight one 6th of an ounce. They are more ſlender than the other long-tailed field mice; and their back of a fuller red, inclining to the colour of a dormouſe.

36. Mus Mexicanus, the *Mexican mouſe*, is of a whitiſh colour, mixed with red, and has a large reddiſh ſpot on each ſide of the belly. It inhabits Mexico.

37. Mus Minutus, the *minute mouſe*, has the upper parts of the body of a deep tawny or ferruginous colour, and the under parts whitiſh. It is about half the ſize of the common mouſe, the tail being ſcarcely two inches long; the female is ſmaller than the male, and leſs elegant in her colours; the noſe is ſomewhat ſharp; the face is duſky, with ſome whiteneſs at the corners of the mouth; the ears are ſmall, and almoſt hid in the fur; the feet are grey. This ſpecies inhabits Ruſſia; where they are found in corn fields, barns, and birch woods, wandering about without any fixed places for neſts, and much greater numbers of males are found than of females. See *fig.* 23.

38. Mus Moschatus, the *Cheroſo*, a very ſmall ſpecies of mouſe, a native of India and Guinea, which ſmells of muſk, but is not ſufficiently deſcribed. The Portugueſe ſay its bite is venomous.

39. Mus Musculus, the common Mouse, has a very long, ſcaly, and almoſt naked tail: the fore feet have each 4 toes; the hind feet 5, the 5th or thumb having no claw: the head and body meaſure 3½ inches in length; the upper parts are tawny, and the lower whitiſh or aſh-coloured.

(See *fig*. 24.) This little animal, which inhabits all parts of the world, lives almoſt entirely in houſes, and follows mankind for the ſake of their proviſions. Is feeds on grain, bread, cheeſe, butter, oil, and every kind of food uſed by mankind, and drinks little: it is of mild and gentle manners, exceedingly timid, and very quick in all its motions. The mouſe never iſſues from his hole but in queſt of food, and runs in again upon the leaſt alarm. It goes not, like the rat, from houſe to houſe, unleſs forced, and is not near ſo deſtructive. It is alſo capable of being tamed to a certain degree, though not ſo perfectly as other animals. It has many enemies, from whom it can eſcape only by its agility and minuteneſs. Owls, birds of prey, cats, weaſels, hedge-hogs, and even rats, make war upon the mice, ſo that they are deſtroyed by milions; yet the ſpecies ſtill ſubſiſts by its amazing fecundity. They bring forth at all ſeaſons and ſeveral times in the year; the litter generally conſiſts of 5 or 6; and in leſs than 15 days the young diſperſe, and are able to provide for themſelves. Ariſtotle tells us, that having ſhut up a pregnant mouſe in a veſſel, along with plenty of grain, he found in a ſhort time after 120 mice, all ſprung from the ſame mother. Several varieties of mice as to colour are found, ſome altogether black, ſome yellowiſh, others ſpotted with white; ſome of a white colour with aſh-coloured ſpots; but the moſt beautiful of all, and the leaſt common, are entirely white, with red eyes. As all theſe agree in every other circumſtance, it is unneceſſary to deſcribe them more particularly.

40. Mus Myocastor Coypus, the *webbed beaver rat*, has a thick hairy tail of a moderate length, and the hind feet webbed. It inhabits Chili, where it frequents the water. It has a ſtrong reſemblance, both in colour and ſhape, to the otter; but is allied to the murine tribe by the number and arrangement of its teeth.

41. Mus Myocastor Zibethicus, the musquash. This is deſcribed under the article Castor, (§ IV. N° 3.) of which it was ranked as a ſpecies by Linnæus. In fact, it reſembles the beaver in the form of the body and flat ſcaly tail, as well as in its manners and economy; but in ſize and length of tail, it comes nearer to the brown rat; though in its general appearance, and ſhort hairy ears, it reſembles the water rat.

42. Mus Myotalpa Aspalax, the *Daurian mole-rat*, is of a dirty yellow aſh-colour on the upper parts, and whitiſh aſh on the lower: has a very ſhort tail, and no external ears; the eyes are very ſmall, and deep ſeated; the feet have each five toes, the claws of the fore feet being very long. (See *fig*. 25.) This ſpecies inhabits Dauria, and Siberia beyond the Irtiſh, between the Alei and Tſcharyſch rivers. They dig very long burrows in the black turfy ſoil or firm ſand, throwing up numerous hillocks, which extend over a conſiderable ſurface; working both with feet and noſe, and ſometimes with their teeth. They feed chiefly on the roots of bulbous plants. This ſpecies varies in ſize, thoſe of Dauria being near 9 inches long, while thoſe farther eaſt are ſcarcely 6.

43. Mus Myotalpa Capensis, the *Cape mole-rat*, is of a dark brown colour tinged yellowiſh, with the fore part of the face, orbits, and regions of the ears, white. It has a very ſhort tail, and no external ears; and is about 5½ inches long. They inhabit the Cape of Good Hope, and infeſt gardens. (See *fig*. 26.)

44. Mus Myotalpa Maritima, the *African mole-rat*, is of a pale browniſh aſh-colour, mixed with yellowiſh on the upper parts, the ſides and under parts paler; the tail is very ſhort; and there are no external ears. They inhabit the ſand hills adjacent to the ſea at the Cape of Good Hope; and reſemble the Capensis, (N° 43.) but are much larger, meaſuring 12 or 13 inches long, and the head is more lengthened. They form burrows in the ſand like thoſe of rabbits; and dig with ſurpriſing celerity. They run ſlowly; but are very fierce, and bite ſeverely. They feed chiefly on the roots of ixiæ, antholyzæ, gladioli, and irides; and are reckoned good eating.

45. Mus Myotalpa Talpina, the *Ruſſian mole-rat*, is of a duſky colour; has a very ſhort tail, ſcarce appearing beyond the fur; and no external ears; the fore teeth are long, extended from the mouth, and wedge-ſhaped; the eyes are very ſmall, and hid in the fur; the feet have 5 toes; the fore feet are very ſtrong, flat, and formed for digging. It is about 4 inches long, and in the general form reſembles the water rat. As to colour, the head, back, and ſides are duſky, and the belly and limbs white. (See *Fig*. 27.) This ſpecies inhabits the plains of Ruſſia and Weſtern Siberia, ſcarcely extending beyond the Irtiſh, and never beyond the Oby. They are fond of a turfy ſoil, avoiding ſandy or muddy places; and dig holes like the hamſter, which they line with ſoft graſs, and fill with bulbous roots, throwing up hillocks of earth all along the tracks; each individual has its ſeparate burrow; works only in the night, and ſeldom comes out except in the ſeaſon of love. Their ſight is very weak in the day-time. They feed chiefly on the roots of tulips, tuberoſe lathyrus, and tuberoſe phlomis. They procreate about the beginning of April, when they ſmell ſtrongly of muſk; and the females produce 3 or 4 young at a litter.

ii. Mus Myotalpa Talpina nigra, is a variety which is entirely black.

46. Mus Myotalpa Typhlus, the *blind mole rat*, is of a reddiſh aſh-colour; and has no tail, external ears, or apparent eyes; the feet have each 5 toes; and the fore teeth are broad. The body and head meaſure between 7 and 8 inches; the mouth is continually gaping, with ſhort wrinkled foreteeth above, and very long ones below, likewiſe wrinkled, none of them being hid by the lips; the body is covered with ſhort, ſoft, and cloſe ſet fur, of a duſky colour at the bottom, with the ends of a ruſty brown mixed with aſh-colour; the legs are very ſhort, having 5 toes on each foot, armed with ſhort claws, and ſlightly connected by a ſhort membrane at their baſes. (See *Fig*. 28.) This ſpecies inhabits the S. parts of Ruſſia, from Poland to the Volga. Each individual forms burrows under the turfy ſoil of very conſiderable extent, with many lateral paſſages, and throws out the earth at different diſtances, in large hillocks ſometimes two yards in circumference, and proportionally high. It works with its ſnout, feet, rump, and teeth, and digs with

great celerity; when frightened, it digs directly downwards. When irritated, they ſnort, gnaſh their teeth, raiſe their head in a menacing poſture, and bite with great ſeverity. They feed on roots, eſpecially thoſe of the bulbous chærophyllum. They are entirely blind, though they have the rudiments of very ſmall eyes, which are covered over with a continuation of the ſkin; but they poſſeſs the ſenſes of touching and hearing in a very eminent degree. They breed in ſpring and ſummer; and the female, which has two teats, brings from 2 to 4 young ones at a birth.

47. **Mus Œconomus**, the *economic mouſe*, in its general form, reſembles the **Arvalis**; (N° 16.) but the body is rather longer and the belly larger. The ears are naked and hid in the fur; the colour is tawny; and the fore feet have each three toes with the rudiments of a 4th. The head and body meaſures 4½ inches; the tail ſomewhat more than an inch. (See *Fig.* 29.) This ſpecies inhabits Siberia from the Irtiſh eaſtwards, in Kamtſchatka, and under the Arctic circles. They are called by Dr Pallas *mures œconomi*, from their curious way of living. They dwell moſtly in damp ſoils, forming burrows, with many chambers and numerous entrances, immediately under the turf. In theſe they lay up magazines of various vegetable food, chiefly bulbous roots; which they ſpread out in ſunny days to dry, and never touch them but in winter, living all ſummer on berries and other vegetables. The Kamtſchatkans hold theſe animals in great regard, and never deſtroy their hoards; they take away only part, and leave ſome caviare or other ſubſtance to ſupport them in its ſtead. This ſpecies ſometimes emigrates in vaſt multitudes, keeping a ſtraight courſe, like the lemmus, even over rivers; and are much infeſted on their march by birds, fiſh, wild hogs, foxes, and other wild animals. They begin their march from about the river Pengin in ſpring, and about the middle of July reach Ochotſka and Judoma, at a vaſt diſtance; and return in October. The Kamſchatkans are alarmed at their migrations, which, they ſay, portend rainy weather and a bad chace; and when they find them lying weak and ſpent with fatigue after croſſing a river, give them every aſſiſtance in their power. The Tſchutſki are not ſo much attached to them, but uſe both their winter ſtores and their carcaſes as food.

48. **Mus Pilorides**, the *muſk cavy*, with a naked tail blunt at the end, and covered with ſcales. There are two varieties: viz.

i. **Mus Pilorides Albidus**, with the body of an uniform whitiſh colour; which inhabits Ceylon:

ii. **Mus Pilorides Fulvus**, with the upper parts tawny, and the under parts white; inhabits the Weſt Indies. They are nearly of the ſize of a rabbit; both burrow in the ground; ſometimes infeſt houſes like the rat; and have a ſtrong flavour of muſk.

49. **Mus Pumilio**, the *dwarf mouſe*, is of a browniſh aſh-colour, with the fore head and nape of the neck black, and having 4 black lines along the back meeting at the tail. It is ſcarcely 2 inches long, the tail is about two-3ds of the length of the body, and the whole animal, even when ſteeped many months in ſpirits, hardly weighs 4 ſcruples. The body is ſomewhat flattened; the regions of the eys, the ears, and the noſe, are of a paler colour than the reſt of the body; all the feet have 5 toes; the thumb or inner toe of the fore feet being very ſmall, but diſtinctly furniſhed with a claw; the legs and feet are ſtrongly made; the tail is almoſt naked, and of a pale aſh-colour. (See *Fig.* 30.) This ſpecies, which was firſt deſcribed by Dr Sparrman, inhabits the foreſts of Sitſicamma near Ilangen river, 200 hours journey from the Cape of Good Hope.

50. †. **Mus Rattus**, the black or common **rat**, has an almoſt naked ſcaly tail, which is very ſmall, has 250 diſtinct rings, and is 8 inches long. The head and body meaſure 7 inches in length; the upper parts are deep black grey, and the under parts aſh-coloured. There are 4 toes, and a ſmall claw, on each fore foot, and 5 on the hind feet, (See *Fig.* 31.) This ſpecies inhabits India, Perſia, and Europe, except its moſt northern parts; hence it has been carried to Africa and America; and is common in Otaheite, but leſs ſo in the other iſlands of the South Sea. Of late, it has greatly diminiſhed in Europe, and is even in many places extirpated, by the brown ſpecies, which deſtroy the black rats; though little is gained by the exchange, the brown having the ſame diſpoſitions, with greater ſtrength and abilities for doing miſchief. The black is the moſt pernicious of any of our ſmaller quadrupeds. Meat, corn, paper, cloaths, furniture, and every convenience of life, are a prey to theſe deſtructive creatures. They make equal havock among poultry, rabbits, and young game; and have even been known to gnaw the extremities of infants when aſleep. They reſide much in houſes, barns, and granaries; and have fore teeth of ſuch ſtrength as to force their way throngh the hardeſt wood and oldeſt mortar. They make lodges for their reſidence, and neſts for their young, near chimneys; and improve the warmth by forming magazines of wool, bits of cloth, hay, or ſtraw. They lodge alſo in cielings, and in the void ſpaces between the wall and the wainſcotting. The female has ten teats, and brings forth ſeveral times a-year, but always in ſummer. The litter generally is 5 or 6; and in ſpite of poiſon, traps, and cats, they multiply to ſuch a degree as often to do a great deal of damage. In houſes where grain is kept, they often increaſe ſo prodigiouſly, that the poſſeſſors are ſometimes obliged to remove, unleſs the rats deſtroy each other. When a famine happens by too many being crowded into one place, the ſtrong kill the weak, open their heads, and firſt eat the brain and then the reſt of the body. Next day the war is renewed, and continues in the ſame manner till moſt of them are deſtroyed; which is the reaſon why theſe animals, after being extremely troubleſome for ſome time, diſappear all of a ſudden, and do not return for a long time. Rats are extremely laſcivious; they ſqueak during their amours, and cry when they fight. When their young begin to iſſue from the hole, the mother watches, defends, and even fights with the cats, to ſave them. A large rat is more miſchievous than a young cat, and nearly as ſtrong: the rat uſes his fore teeth; the cat makes moſt uſe of her claws; ſo that the latter requires both

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to be vigorous, and accuſtomed to fight, to deſtroy her adverſary. The weaſel, though ſmaller, is a much more dangerous and formidable enemy, becauſe he can follow the rat into its retreat. Their ſtrength being nearly equal, the combat often continues long, but the method of uſing their arms is very different. The rat wounds only by reiterated ſtrokes with his fore teeth, which are better formed for gnawing than biting; and being ſituated at the extremity of the lever or jaw, they have not much force. But the weazel bites cruelly with the whole jaw; and inſtead of letting go its hold, ſucks the blood from the wounded part, ſo that the rat is always killed.—The rat was firſt introduced into America by the Europeans in 1544, and is now the peſt of all that continent.

ii. Mus Rattus minor, a ſmall variety, in the neighbourhood of the lower parts of the Volga, found in the deſarts, which does not weigh above 6 or 7 drams.

51. i. Mus Rutilus, the *red mouſe*, has a ſhort tail; the ears are longer than the fur, which is tawny red on the back, light grey and yellow on the ſides, and whitiſh on the belly. The head and body meaſure about 4 inches, and the tail one. (See *Fig.* 32.) This ſpecies inhabits Siberia, from the Oby to Kamtſchatka, and within the Arctic circle. They live in holes and hollows of trees; feeding on grain, and ſometimes on animals of the ſame genus. They come often into houſes and barns, eating almoſt of every thing, but are particularly fond of fleſh. They are very lively, and run about on the ſnow the whole winter.

ii. Mus Rutilus minor, a variety of a ſmaller ſize, found about Caſan and Goettingen, in Germany.

52. Mus Saxatilis, the *rock mouſe*, is about 4 inches long, and weighs nearly 9 drams; the tail is hairy, an inch and a half long, of a brown colour above, and white beneath; the head is oblong, with a longiſh noſe, and oval downy ears, brown at the edges; the limbs are ſtrong; and the tail is thinly covered with hair; the upper parts of the body are brown, ſlightly mixed with yellowiſh or grey; the ſides are rather inclined to grey; the belly is of a light aſh or whitiſh; the feet and legs are blackiſh; the ſnout is duſky, and ſurrounded with a ſlender white ring. (See *Fig.* 33.) This ſpecies inhabit the eaſtern parts of Siberia beyond lake Baikal, and the deſerts of Mongul Tartary. They burrow in the fiſſures of rocks, forming a winding oblique paſſage, which afterwards branches out into ſeveral others pointing downwards, and ending in a chamber, in which is a bed of ſoft herbs. They feed chiefly on the ſeeds of the aſtragalus.

53. Mus Socialis, the *ſocial mouſe*, with a very ſhort ſlender tail, and naked, rounded, and very ſhort ears; the fore feet have each 3 toes and the rudiments of a 4th; the upper parts of the body are light grey; the ſides, ſhoulders, and belly, white. The head and body are above 3 inches long, the tail half an inch. They inhabit the ſandy deſarts between the Volga and Ural, near the Caſpian ſea, and in the mountains of Hyrcania. They live in families, conſiſting of a male and a female with their young ones; and of theſe families vaſt numbers live together, the whole country being covered with hillocks of earth thrown out of their burrows. They feed moſtly on tulip roots; and are preyed on by weaſels, polecats, crows, and otters. They ſwarm chiefly in ſpring, rarely in autumn, when they migrate, or take ſhelter among the buſhes. See *Fig.* 34.

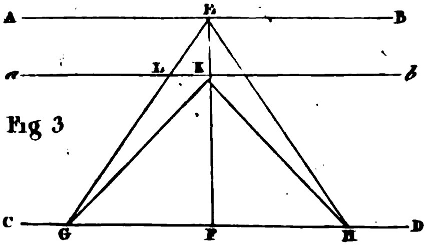
54. Mus Soricinus, the *ſhrew-like mouſe*, is hardly $2\frac{1}{2}$ inches long, has a hairy tail, long ſnout, with 7 rows of whiſkers, ears rounded and hairy; the upper parts yellowiſh grey, the under whitiſh. It inhabits Straſburgh.

55. Mus Striatus, the *ſtriped mouſe*, is about half the ſize of the common mouſe, has a naked tail as long as the body: 4 toes before and 5 behind, and is elegantly marked on the back with 12 rows of pearl-coloured ſpots. It inhabits India.

56. i. Mus Sylvaticus, the *long-tailed field mouſe*, is larger than the common mouſe, meaſuring from the end of the noſe to the ſetting on of the tail $4\frac{1}{2}$ inches; the tail 4 inches; the upper parts of the body are of a yellowiſh brown; the breaſt is yellow, and the belly white; the tail is covered with ſhort hair. The fore feet have 4 toes each; the hind feet 5. (See *Fig.* 35, 36.) Theſe animals are found in fields, gardens, and ſhrubberies. In ſome places they are called *bean mice*, from the havock they make among beans when firſt ſown. They feed alſo on nuts, acorns, and grain, of which they amaſs quantities, not proportioned to their wants, but to the capacity of the place where it is depoſited, inſomuch that a ſingle animal will collect more than a buſhel. Thus they provide for other animals as well as themſelves: the hog comes in for a ſhare; and the great damage done to the fields by theſe creatures, in rooting up the ground, is chiefly owing to their ſearch after the concealed hoards of the field mice. M. Buffon ſays, he has often ſeen great damage done to the plantations by them. They carry off the new ſown acorns; by following the furrow of the plough, they dig up one after another, not leaving a ſingle ſeed. This happens chiefly in thoſe ſeaſons when the acorns are ſcarce: not finding a ſufficient quantity in the woods, they come in queſt of them to the cultivated fields, and often carry off ſuch quantities that they corrupt in their magazines. They do more miſchief in a nurſery of trees than all the other animals put together. The only way to prevent this damage is to lay traps at ten paces aſunder, through the extent of the ſown field. No other apparatus is neceſſary than a roaſted walnut placed under a flat ſtone, ſupported by a ſtick. The animals come to eat the walnut, which they prefer to acorns; and as it is fixed to the ſtick, whenever they touch it, the ſtone falls down and cruſhes them to death. The ſame expedient M. Buffon made uſe of with ſucceſs againſt the ſhort-tailed field mouſe, which alſo deſtroys acorns. In this way upwards of 100 were taken each day, from a piece of ground conſiſting only of about 40 French arpents. From the 15th Nov. to the 8th Dec. above 2000 were killed in this manner. Their numbers gradually diminiſhed till the froſt became ſevere, which is the time they retire into their holes to feed on their proviſions. In autumn they are moſt numerous; if proviſions fail in winter, they devour one another. The long-tailed

Plate CCXXIV.

Fig 3



MYA

Fig.1.

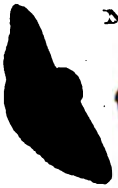
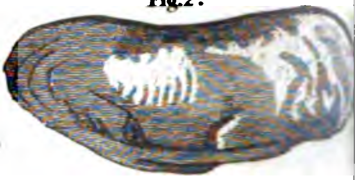
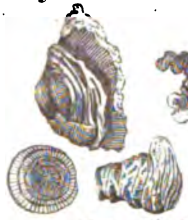


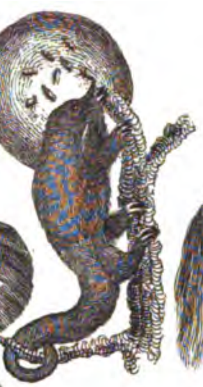
Fig.2.



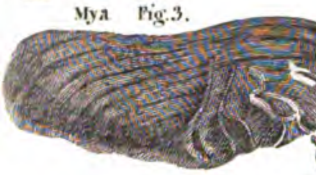
Mycetites.



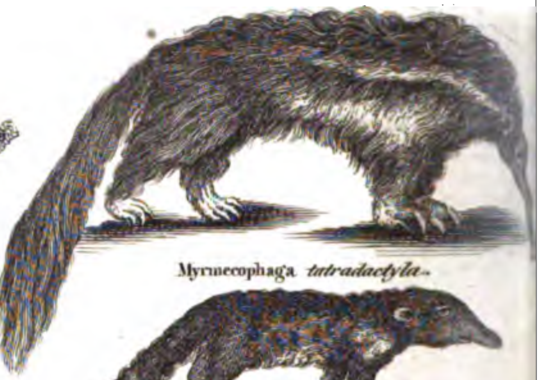
Myrmecophaga *didactyla*.



Mya Fig.3.



Myrmecophaga *jubata*.



Myrmecophaga *tetradactyla*.

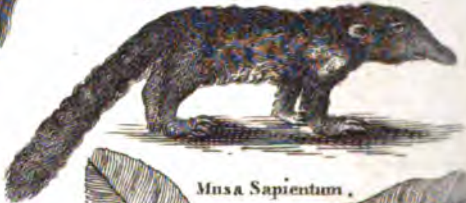
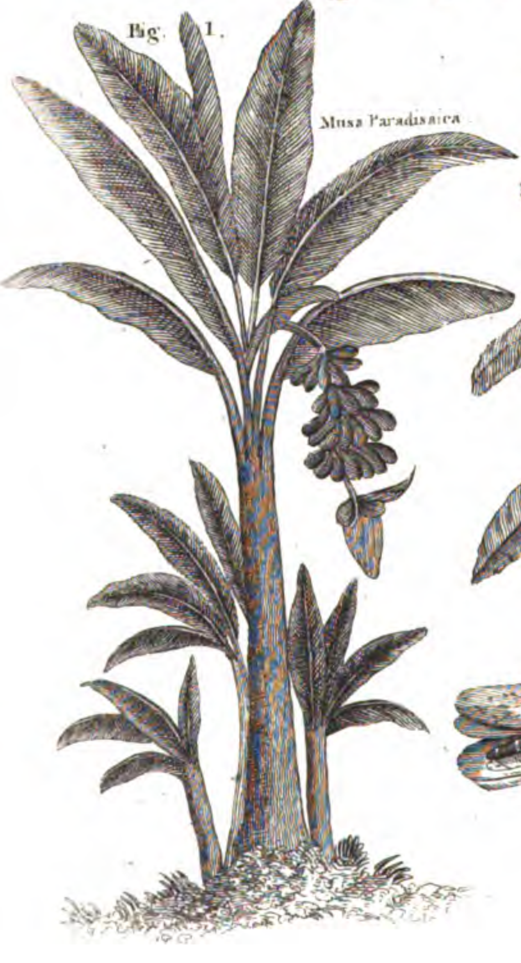


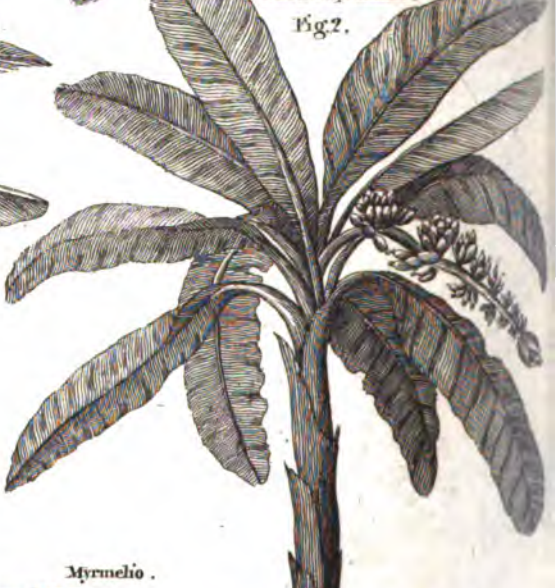
Fig. 1.

Musa Paradisaica

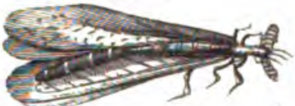


Musa Sapientum.

Fig.2.



Myrmelio.



Mya. Fig.4.

[illegible] Sculpt

mice eat alſo the ſhort-tailed ſpecies, and thruſhes, blackbirds, &c. which they find entangled in ſnares. M. Buffon once kept a dozen of theſe mice in a cage, and furniſhed them with food every morning at 8 o'clock. One day they were neglected for about a quarter of an hour, when one of their number was eaten up by the reſt; next day another ſuffered the ſame fate, and in a few days only one remained; all the others had been killed, and partly devoured, and even the ſurvivor had his feet and tail mutilated. They are very prolific, producing more than once a-year, and bringing 9 or 10 at a birth. They generally make the neſt for their young very near the ſurface, and often in a thick tuft of graſs. In winter they frequent barns, ſtables, and out-houſes.

ii. **Mus Sylvaticus Albus**, the white field mouſe, is a variety which is entirely white, and has red eyes.

57. **Mus Torquatus**, the *collared* or *ringed mouſe*, has a very ſhort tail, with a tuft of hard briſtles at the end, which is blunt; the ears are ſhorter than the fur; the feet have each 5 toes; the fur is ferruginous, varied with grey, yellow, and duſky, having a whitiſh collar round the neck, and a dark line along the back. (See *Fig.* 37.) The head and body are above 3 inches long, the tail ſcarcely one inch. They inhabit the N. parts of the Uralian mountains, and the marſhes near the frozen ocean; feeding chiefly on the lichen languiferus, lichen nivalis, and polygonum viviparum; theſe plants they ſtore up in burrows having numerous paſſages, dug under the turfy ſoil. This ſpecies is migratory, and reſembles the LEMMUS in its manners. See N° 33.

58. **Mus Tschelag**, the *Kamtſchatka mouſe*, is of a ſmall ſize and very bold, but not ſufficiently deſcribed. *Pennant.*

59. **Mus Vagus**, the *wandering mouſe*, is between 2 and 3 inches long; the upper parts of the body are a pale aſh-colour, waved with black, and having a black line along the middle of the back; the ears are large, oval, naked, and plaited. The legs are very ſlender, and the feet whitiſh, having 4 toes with a conical excreſcence before, and 5 behind, all armed with long claws; the tail is longer than the body, very ſlender, prehenſile at the end, of an aſh colour above, and whitiſh below; the head is oblong, with a blunt noſe reddiſh at the tip, having yellow fore teeth, and only two grinders on each ſide in the upper jaw. The female has 8 teats.—This ſpecies inhabit the deſerts of Tartary and Siberia, as high as the Ural, Irtiſh, Oby, and Jeniſei; are frequent in birch woods, and live in fiſſures of rocks, under ſtones, and in hollows of trees; feeding chiefly on ſeeds, and on ſmall animals of the ſame genus. They wander about in great flocks, migrating in the night; hibernate in winter, and are of a very chilly nature, ſo as to become torpid and fall aſleep, in a round form, in cold nights. See *Fig.* 38.

60. **Mus Virginianus**, the *Virginian mouſe*, has a very hairy long tail, very thick at the baſe, but tapering gradually. The noſe is pointed and black, ears pointed, limbs very ſlender, the colour univerſally white.

(I.) **MUSA**, Antonius, an eminent Greek phyſician, who cured the emperor Auguſtus of a dangerous illneſs by bathing. He was the firſt who preſcribed the uſe of the cold bath. The Romans erected a ſtatue to his honour. He wrote two treatiſes, which are both extant: 1. *De Herba Botanica*: and, 2. *De Tuenda Valetudine.*

(II.) **Musa**, a town of Arabia, in Yemen.

(III.) **Musa**, in botany, the PLANTAIN TREE, a genus of the monœcia order, belonging to the polyandria claſs of plants, and in the natural method ranking under the 8th order, *Scitamineæ*. The calyx of the male hermaphrodite is a ſpatha or ſheath; the corolla is dipetalous; the one petal erect and quinquedentate; the other nectariferous, concave, and ſhorter; there are 6 filaments, 5 of which are perfect; one ſtyle; the germen inferior and abortive. The female hermaphrodite has the calyx, corolla, filaments, and piſtil of the male hermaphrodite, with only one filament perfect; the berry is oblong, and three-angled below. The moſt remarkable ſpecies are theſe:

1. **Musa paradisaica** is cultivated in all the iſlands of the Weſt Indies, where the fruit ſerves the Indians for bread; and ſome of the white people alſo prefer it to moſt other things, eſpecially to the yams and caſſada bread. The plant riſes with a ſoft ſtalk 15 or 20 feet high; the lower part of the ſtalk is often as large as a man's thigh, diminiſhing gradually to the top, where the leaves come out on every ſide. Theſe are often 8 feet long, and from 2 to 3 broad, with a ſtrong fleſhy midrib and a great number of tranſverſe veins running from the midrib to the borders. The leaves are thin and tender, ſo that where they are expoſed to the open air, they are generally torn by the wind; for as they are large, the wind has great power againſt them. Theſe leaves come out from the centre of the ſtalk, and are rolled up at their firſt appearance; but when they are advanced above the ſtalk, they expand and turn backward. (See *Plate* CCXXIX. *fig.* 1.) As theſe leaves come up rolled in this manner, their advance upward is ſo quick, that their growth may almoſt be diſcovered by the naked eye; and if a fine line is drawn acroſs, level with the top of the leaf, in an hour the leaf will be near an inch above it. When the plant is grown to its full height, the ſpikes of flowers appear in the centre, which is often near 4 feet long, and nodes on one ſide. The flowers come out in bunches; thoſe in the lower part of the ſpike being the largeſt; the others diminiſh in their ſize upward. Each of theſe bunches is covered with a ſheath of a fine purple colour, which drops off when the flowers open. The upper part of the ſpike is made up of male flowers, which are not ſucceeded by fruit, but fall off with their covers. The fruit or plantain is about a foot long, and an inch and a half or two inches diameter. It is at firſt green; but when ripe, pale yellow. The ſkin is tough, and within is a ſoft pulp of a luſcious ſweet flavour. The ſpikes of the fruit are often ſo large as to weigh upwards of 40 lb. The fruit of this ſort is generally cut before it is ripe. The green ſkin is pulled off, and the heart is roaſted in a clear fire for a few minutes, and frequently turned; it is then ſcraped, and ſerved up as bread. Boiled plantains are not ſo palatable. This tree is cultivated on a very extenſive ſcale in Jamaica; without the fruit of

which, Dr Wright ſays, the iſland would ſcarce be habitable, as no ſpecies of proviſion could ſupply their place. Even flour or bread itſelf would be leſs agreeable, and leſs able to ſupport the laborious negro, ſo as to enable him to do his buſineſs, or to keep in health. Plantains alſo fatten horſes, cattle, ſwine, dogs, fowls, and other domeſtic animals. The leaves being ſmooth and ſoft, are employed as dreſſings after bliſters. The water from the ſoft trunk is aſtringent, and employed by ſome to check diarrhœas. Every other part of the tree is uſeful in different parts of rural economy. The leaves are uſed for napkins and table cloths, and are food for hogs.

2. **Musa sapientum**, the **Banana** *tree*. (See *Plate* CCXXIX. *fig.* 2.) This ſpecies differs from the preceding in having its ſtalks marked with dark purple ſtripes and ſpots. The fruit is ſhorter, ſtraighter, and rounder; the pulp is ſofter, and of a more luſcious taſte. It is never eaten green; but when ripe, it is very agreeable, either eaten raw, or fried in ſlices as fritters; and is reliſhed by all ranks of people in the Weſt Indies. Both theſe plants were carried to the Weſt Indies from the Canary Iſlands; whither, it is believed, they had been brought from Guinea, where they grow naturally. They are alſo cultivated in Egypt, and in moſt other hot countries, where they grow to perfection in about 10 months from their firſt planting to the ripening of their fruit. When their ſtalks are cut down, ſeveral ſuckers come up from the root, which in 6 or 8 months produce fruit; ſo that by cutting down the ſtalks at different times, there is a conſtant ſucceſſion of fruit all the year. In Europe ſome of theſe plants are raiſed by gentlemen, who have hot-houſes capacious enough for their reception, in many of which they have ripened their fruit very well; but, as they grow very tall, and their leaves are large, they require more room in the ſtove than moſt people are willing to allow them. They are propagated by ſuckers, which come from the roots of thoſe plants which have fruited; and many times the younger plants, when ſtinted in growth, alſo put out ſuckers. The fruit of this tree is 4 or 5 inches long, of the ſize and ſhape of a middling cucumber, and of a high, grateful flavour; the leaves are 2 yards long, and a foot broad in the middle; they join to the top of the body of the tree, and often contain in their cavities a great quantity of water, which runs out, upon a ſmall inciſion being made into the tree, at the junction of the leaves. Bananas grow in great bunches, that weigh 12 lb. and upwards. The body of the tree is ſo porous as not to merit the name of wood; the tree is only perennial by its roots, and dies down to the ground every autumn. When the natives of the Weſt Indies (ſays Labat) undertake a voyage, they make proviſion of a paſte of banana, which, in caſe of need, ſerves them for nouriſhment and drink; for this purpoſe they take ripe bananas, and having ſqueezed them through a fine ſieve, form the ſolid fruit into ſmall loaves, which are dried in the ſun or in hot aſhes, after being previouſly wrapped up in the leaves of Indian flowering reed. When they would uſe this paſte, they diſſolve it in water, which is eaſily done; and the liquor, thereby rendered thick, has an agreeable acid taſte, which makes it both refreſhing and nouriſhing. The banana is greatly eſteemed, and even venerated, by the natives of Madeira, who term it the *forbidden fruit*, and reckon it a crime almoſt inexpiable to cut it with a knife; becauſe, after diſſection, it exhibits, as they pretend, a ſimilitude of our Saviour's crucifixion; and to cut the fruit open with a knife, is, in their apprehenſion, to wound his ſacred image. Some authors ſuppoſe, that the banana tree was that of the leaves of which our firſt parents made their aprons in Paradiſe. The ſacred text, indeed, calls the leaves employed for that purpoſe *fig-leaves*; and Milton, in a moſt beautiful but erroneous deſcription, affirms the bearded or Bengal fig to have been the tree alluded to. But beſides that the fruit of the banana is often by the moſt ancient authors called a *fig*, its leaves, by their great ſize and ſolidity, were much more proper for a veil or covering than thoſe of the Bengal fig, which are ſeldom above 6 or 8 inches long and 3 broad. On the other hand, the banana leaves being 3, 4, and 5 feet long, and proportionably broad, could not fail to be pitched upon in preference to all others; eſpecially as they might be eaſily joined, or ſewed together, with the numerous thread-like filaments that may, with the utmoſt facility, be peeled from the body of this tree. Some have ſuppoſed the Abyſſinian plant ENSETE to be a ſpecies of muſa (ſee ABYSSINIA, and ETHIOPIA, § 68); but Mr BRUCE, in his *Travels*, Vol. 5, p. 36, ſtrongly controverts this opinion. "It is true (ſays he), the leaf of the banana reſembles that of the enſete; it bears figs, and has an excreſcence from its trunk, which is terminated by a conical figure, chiefly differing from the enſete in ſize and quantity of parts; but the figs of the banana are of the ſize and figure of a cucumber, and this is the part which is eaten. This fig is ſweet, though mealy, and of a taſte highly agreeable. It is ſuppoſed to have no ſeeds, though in fact there are four ſmall black ſeeds belonging to every fig. But the figs of the enſete are not eatable; they are of a ſoft tender ſubſtance; watery, taſteleſs, and in colour and conſiſtence reſembling a rotten apricot; they are of a conical form, crooked a little at the lower end; about an inch and an half in length, and an inch in breadth where thickeſt. In the inſide of theſe is a large ſtone half an inch long, of the ſhape of a bean or caſhew-nut, of a dark brown colour; and this contains a ſmall ſeed, which is ſeldom hardened into fruit, but conſiſts only of ſkin. The long ſtalk that bears the figs of the enſete ſprings from the centre of the plant, or rather is the body or ſolid part of the plant itſelf. Upon this, where it begins to bend, are a parcel of looſe leaves; then grows the fig upon the body of the plant without any ſtalk; after which the top of the ſtalk is thick ſet with ſmall leaves, in the midſt of which it terminates the flower in the form of an artichoke; whereas in the banana, the flower in form of the artichoke grows at the end of that ſhoot or ſtalk which proceeds from the middle of the plant, the upper part of which bears the row of figs. The leaves of the enſete are a web of longitudinal fibres cloſely ſet together; the leaves grow from the

bottom without ſtalks; whereas the banana is in form like a tree, and it has been miſtaken for ſuch. One half of it is divided into a ſtem, the other is a head formed with leaves; and in place of the ſtem that grows out of the enſete, a number of leaves, rolled round together like a truncheon, ſhoots out of the heart of the banana, and renews the upper as the under leaves fall off; but all the leaves of the banana have a long ſtalk; this fixes them to the trunk, which they do not embrace by a broad baſe or involucrum as the enſete does.—The muſa is neither woody nor perennial; it bears the fruit but once; and in all theſe reſpects it differs from trees of the palmaceous kind, and indeed from all ſorts of trees whatever. The enſete, on the contrary, has no naked ſtem; no part of it is woody; the body of it, for ſeveral feet high, is eſculent; but no part of the banana plant can be eaten. As ſoon as the ſtalk of the enſete appears perfect and full of leaves, the body of the plant turns hard and fibrous, and is no longer fit to be eaten; before, it is the beſt of all vegetables. When boiled, it has the taſte of the beſt new wheat-bread not perfectly baked. When you make uſe of the enſete for eating, you cut it immediately above the ſmall detached roots, and perhaps a foot or two higher, as the plant is of age. The green muſt be ſtripped from the upper part till it becomes white; when ſoft like a turnip well boiled, if eat with milk or butter, it is the beſt of all food, wholeſome, nouriſhing, and eaſily digeſted."

MUSACCHIA, a town of Turkey, in Albania, 36 miles SSE. of Albaſano.

MUSACRA, a town of Spain, in Grenada.

MUSÆ, the Muſes. See MUSES.

(1.) **MUSÆUM.** See MUSEUM.

(2.) **MUSÆUM**, a hill near the citadel of Athens, ſo called according to Pauſanias from MUSÆUS, who uſed to retire thither to meditate and compoſe his religious hymns; at which place he was afterwards buried.

MUSÆUS, an ancient Greek poet, who was, according to Plato and Diodorus Siculus, an Athenian, the ſon of Orpheus, and chief of the Eleuſinian myſteries inſtituted at Athens in honour of Ceres. According to others, he was only the diſciple of Orpheus; but from the great reſemblance between his talents and thoſe of his maſter, he was called his *ſon*. Muſæus is one of the firſt poets who verſified the oracles. He is placed in the Arundelian marbles, epoch 15, 1426 B. C. at which time his hymns are there ſaid to have been received in the celebration of the Eleuſinian myſteries. Laertius ſays, that Muſæus not only compoſed a theogony, but formed a ſphere for the uſe of his companions; yet, as this honour is generally given to Chiron, Sir Iſaac Newton ſuppoſes that he enlarged it with the addition of ſeveral conſtellations after the conqueſt of the golden fleece. The ſphere itſelf ſhows that it was delineated after the Argonautic expedition, which is deſcribed in the aſteriſms, together with ſeveral other more ancient hiſtories of the Greeks, and without any thing later; for the Argo was the firſt long veſſel which they had built. Hitherto they had uſed round ſhips of burden, and kept within ſight of the ſhore; but now the princes of that country ſailed rapidly through the deep, and guided their ſhips by the ſtars. Muſæus is celebrated by Virgil in the character of hierophant, or prieſt of Ceres, at the head of the moſt illuſtrious mortals who merited a place in Elyſium. Here he is made the conductor of Æneas to the receſs where he meets the ſhade of his father Anchiſes. The works which went under his name, like thoſe of Orpheus, were by many attributed to Onomacritus. Nothing remains of them now, nor were any of his writings extant in the time of Pauſanias, except a hymn to Ceres, which he made for the Lycomides. And as his hymns were likewiſe ſet to muſic, and ſung in the myſteries by Muſæus himſelf in the character of prieſt, he thence perhaps acquired from after times the title of *muſician;* the performance of ſacred muſic being probably at firſt confined to the prieſthood in theſe celebrations, as it had been before in Egypt, whence they originated. However, he is not enumerated among ancient muſicians by Plutarch.

MUSAGATA, a town of Portugal, in Beira.

MUSAGETES, a title of HERCULES.

MUSAY, a town of Hungary, S. of Munkacz.

(1.) **MUSCA**, the FLY, in zoology; a genus of inſects belonging to the order of diptera. The mouth is furniſhed with a fleſhy proboſcis, and two lateral lips; but it has no palpi. This genus is divided into two different ſections: 1. Thoſe with ſimple antennæ. 2. Thoſe which are furniſhed with a lateral hair or feather. Thoſe have downy bodies, though ſcarce perceptibly ſo; and have either a lateral plume or feather on the antennæ, or a ſimple hair on the ſide of the antennæ. The piloſæ have a few hairs ſcattered upon their bodies, principally upon the thorax; they have either a lateral feather or a lateral hair. Under theſe diviſions are comprehended about 400 different ſpecies, as enumerated in Dr Gmelin's edition of the *Syſtema Naturæ*. "Variety (as Mr Barbut obſerves) runs through their forms, their ſtructure, their organization, their metamorphoſes, their manner of living, propagating their ſpecies, and providing for their poſterity. Every ſpecies is furniſhed with implements adapted to its exigencies. What exquiſiteneſs! what proportion in the ſeveral parts that compoſe the body of a fly! What preciſion, what mechaniſm in the ſprings and motion! Some are oviparous, others viviparous; which latter have but two young ones at a time, whereas the propagation of the former is by hundreds. Flies are laſcivious troubleſome inſects, that put up with every kind of food. When ſtorms impend, they have moſt activity, and ſting with greateſt force. They multiply moſt in hot moiſt climates; and ſo great was formerly their numbers in Spain, that there were fly-hunters commiſſioned to kill them. The vapour of ſulphur or arſenic deſtroys them; and their numbers may be reduced by taking them in phials of honeyed water, or between boards done over with honey." There are 129 ſpecies principally diſtinguiſhed by the peculiarities in their feelers.

(2.) **MUSCA**, a name given to ſuch perſons among the Romans as officiouſly thruſt themſelves into the company of their ſuperiors and thoſe who deſpiſed them, by finding means of getting admittance to entertainments without invitation, and without a welcome: ſo that *muſcæ* were the ſame as paraſites, who were frequently by the Greeks termed Μυιαι. See PARASITE.

(1.) * MUSCADEL. } *adj.* [*muſcat*, *muſcadel*,
(1.) * MUSCADINE. } Fr. *muſcatello*, Ital. [either from the fragrance reſembling the nutmeg, *nux moſcata*, or from *muſca*. a fly; flies being eager of thoſe grapes.] A kind of ſweet grape, ſweet wine and ſweet pear.—

He quaff'd off the *muſcadel*,
And threw the ſops all in the ſexton's face. *Shak.*

(2.) MUSCADINE, or MUSCADEL, a rich wine, of the growth of Provençe, Languedoc, Cividad, &c. The method of making muſcadine at Frontignac is as follows: they let the muſcadine grapes grow half dry on the vine; as ſoon as they are gathered, they tread and preſs them immediately, and tun up the liquor, without letting it ſtand and work in the fat; the lee occaſioning its goodneſs.

MUSCHENBROECK, PETER DE, a diſtinguiſhed natural philoſopher and mathematician, born at Utrecht about 1700. He was firſt profeſſor of theſe ſciences in his own univerſity, and afterwards invited to the chair at Leyden, where he died full of honours in 1761. He was a member of ſeveral academies; particularly of that of Sciences at Paris. He wrote ſeveral works in Latin, all of which ſhow the greateſt penetration. He was alſo very conſummate in the knowledge of law. His courſe of natural philoſophy was tranſlated into Engliſh in 2 vols 8vo.

MUSCHUOF, a town of Arabia, in Yemen.

(1.) MUSCI, MOSSES, one of the ſeven families or claſſes, into which all vegetables are divided by Linnæus in the *Philoſophia Botanica*. The ancients took the moſs of trees to be the effect of a diſorder or diſcompoſure of the texture on the bark; or at moſt a kind of little filaments ariſing from the bark: but the moderns find, by ſeveral obſervations, that moſſes are all real diſtinct plants, whoſe ſeed, being extremely ſmall, is incloſed in little capſulæ; which burſting of themſelves, the ſeed is carried off by the winds; till, falling into the inequalities of the bark of trees, it is there ſtopped, takes root, and feeds at the expenſe of the tree, as mouldineſs does on bread, &c. What botanical writers ſtrictly underſtand by the word MOSS, is a claſs of plants appearing of an inferior rank to the common vegetables; the leſs perfect genera of which have been ſuppoſed to be wholly deſtitute of flowers or ſeeds, or any thing analogous to either, and to conſiſt of ſimple, ſimilar, and uniform parts; the genera a little above theſe have ſome diverſity of parts, reſembling thoſe which ſerve other plants for fructification. The more perfect genera of the moſſes not only conſiſt of different parts, but have alſo their appropriated organs containing a pulpy matter, which becomes dry, and aſſumes the form of a fine powder, compoſed of granules, each of which is either a ſeed or granule of farina, ſerving for the propagation of the ſpecies. The imperfect moſſes are diſtinguiſhed from the others by their appearance to the naked eye; they are either in form of a fine lanugo or down covering the ſurface of different bodies; or of ſlender filaments, or foliaceous bodies, floating about in the water; or are filaments of a tougher texture, hanging down from the branches of old trees; or little ſhrubs, or ſingle horns, growing erect on the parched earth of mountains and heathy places; or as broad and foliaceous bodies ſpreading themſelves over the dry barks of trees or rocks, without any pedicle or other ſupport. The perfect kinds of moſſes are found in the ſhape of ſmall but regular plants, divided into ſeveral branches, and clothed with leaves: theſe are of various forms and ſtructures; ſome broad and thin, others ſlender as hairs; ſome pellucid, others opake; ſome ſmooth, others hairy. From the alæ of theſe leaves in ſome kinds, and from the ſummit of the ſtalks in others, there ariſe heads of various figure and ſtructure, but all unicapſular; ſome of theſe are naked, others covered with a calyptra or hood; ſome ſtand on long pedicles, and others are placed cloſe to the ſtalks. Theſe heads are called *capſulæ*, and contain their ſeeds or farina, and their pedicles *ſetæ*, in the *mnia*, *hypna*, *brya*, and *polytricha*, &c. Theſe capſules in ſome are covered with a calyptra; in others they are naked. Of the firſt kind are the *ſplachnum*, *polytrichum*, *mnium*, *bryum*, *hypnum*, *fontinalis*, and *buxbaumia*; and of the latter ſort, the *lycopodium*, *porella*, *ſphagnum*, and *phaſcum*. The ſubſtance with which the capſules of all the moſſes are filled, reſembles either ſeeds, or the ſmall globules of the farina of flowers, which all reſemble ſeeds of particular figures in miniature. The fructifications of theſe minute plants ſeem to be either from theſe, as ſeeds falling to the earth; or, to contain only farina in the capſules, which impregnating certain bulbs or nodules in the alæ of the leaves, cauſe them to grow and vegetate, as is ſeen in ſome of the larger plants; as in the bulbs produced in the alæ of the leaves of the dentaria, and of the lilies, and ſome others. The former opinion, of the powder in the heads or capſules being actually perfect ſeeds, is the more probable, as the bulbs in the alæ of the leaves are found only in ſome of the hypna, and others of a few other genera; whereas the propagation is as quick, and certain in thoſe which have none of them as in thoſe which have; and the want of female parts of fructification, which makes ſo many deſiderata in the Linnæan ſyſtem of botany, is eaſily made up, and the whole explained according to the uſual courſe of nature in other vegetables, by conſidering the powder in the capſules as real ſeeds, and the ſmall globules on the pointals ſurrounding the aperture of the capſule, the farina. The opinion of the moſſes growing from theſe nodules in the alæ of the leaves, or from the impregnated ends of the branches which had received the powder from the capſules, was originally founded on obſerving that the trailing or branched hypna annually grew out in length, from the extremities of all their branches, and annually loſt as much of the old ſtalk at the root as they gained of the new at the ſummit: but it appears, from farther obſervations, that they are real ſeeds which are contained in form of powder in the capſules; ſince the brya, and many others, are found growing from ſmall points or ſpots, which are aſſemblages of their minute leaves, propagated on the ground, under the old ones juſt where the powder of the capſules has fallen; and though it be allowed that the hypna and other trailing moſſes do grow from the ends of the branches, yet they may alſo be produced in form of new plants, from regular and perfect ſeeds ſhed from the capſules. It is certain that the brya are thus propagated and ſpread into large tufts, and the other genera may alſo be ſo propagated, though they have a property of increaſing by growth of the ſtalk; which reſembles the property of many of the large plants that creep at the root, and ſhoot out in length greatly from the extremities of their horizontal branches, lying on or under the ground; as thoſe ſpreading parts may more properly be ſo called than roots, the fibres puſhed out from them perpendicularly into the earth being properly the roots; and it is well known that theſe plants, though they propagate thus by the root, produce ſeeds alſo like the others, by which they may be equally propagated. This analogy may be carried ſtill farther; for as thoſe plants which creep by the roots produce fewer ſeeds than thoſe which are propagated only by ſeeds; ſo the hypna, which are the genus of moſſes in which this growth by the ſtalk is principally obſerved, are very thinly beſet with capſules of ſeed, and many of them produce but very few in a ſeaſon; whereas the brya, and other moſſes, which have not this advantage of growing from the ends of the ſtalks, are found every year profuſely covered with capſules from every tuft: nay, there is ſcarce any branch which does not produce its capſule. Now, if theſe capſules contained only a farina capable of impregnating the nodules or the ends of the branches, it would be as much of it required for the hypna as for any other kinds of moſſes; but if they are real and perfect ſeeds, it is no wonder that they are given profuſely to ſuch kinds as are to be propagated only by ſeeds, and more ſparingly to thoſe which are propagated alſo by the increaſe of the branches. It may be added, that the ferns and other epiphylloſpermous plants approach neareſt to the nature of the moſſes; and it is now well known that the fine powder at the back of their leaves is true and perfect ſeed; as under many ſpecies of them, there are conſtantly found new and ſelf-ſown plants ariſing in their firſt rudiments of leaves and figure, which have plainly grown from the powder fallen from the old plants; and as this is now found to be the caſe in regard to the ferns, probably it will alſo appear the ſame in regard to moſſes. But whether theſe grains of powder have the lobes and radicles by which the ſeeds of larger plants propagate, or whether they grow into plants like the parent ones, in the manner of the lichens, by mere expanſion, requires farther obſervation to determine. Some of the moſſes approach to the nature of thoſe plants which have their male and female parts in the ſame flower, and others to thoſe which have them in different ones. This tribe of plants, as well as the muſhrooms, ferns, and ſea-weeds, are ſtill imperfectly known. Dillenius, profeſſor of botany at Oxford, was the firſt who attempted an arrangement of them. In his *Catalogus Plantarum circa Giſſam*, publiſhed at Francfort in 1719, and afterwards in his *Hiſtoria Muſcorum*, publiſhed at Oxford 1741, he divides the moſſes into 16 genera. This arrangement, however, includes the lichens, ſome of the fuci, and other plants which belong to very different families. The work, however, is valuable, in having introduced the knowledge of upwards of 200 plants, which were unknown before Dillenius: it is alſo of all his works the beſt executed, both for the deſcriptions and figures, and may ſerve as a model to ſuch authors as intend to publiſh in detail the hiſtory of any particular family of plants. Micheli, in his *Nova Plantarum Genera*, publiſhed at Florence in folio, in 1629, divides the moſſes into two ſections, from the figure and ſituation of their flowers. Theſe ſections comprehend together 16 genera, amongſt which are improperly arranged ſeveral of the lichens and other ſea-weeds. The diſcovery of the ſeeds of the moſſes, though made by Dillenius in 1719, is claimed by Linnæus, who did not begin to write till 1735. In Ray's method, the moſſes form the 3d claſs; in Tournefort's, they conſtitute a ſingle genus, by the name of MUSCUS, in the firſt ſection of the 17th claſs, which comprehends the moſſes, muſhrooms, and ſome of the algæ or ſea-weed, and is diſtinguiſhed by the name of *aſpermæ*, or plants without ſeed; the ſeeds of the moſſes not having been detected by Tournefort.

(2.) MUSCI, in the Linnæan or Sexual Syſtem of botany, conſtitute the 2d order of the claſs *cryptogamia*, which contain all thoſe plants in which the parts of the flower and fruit are either wanting, or not conſpicuous. The characteriſtics are, 1. Antheræ or tops without filaments or threads. 2. The male flower, conſtituted by the preſence of the tops, placed apart from the female, either on the ſame or diſtinct roots. 3. The female flowers diſtinct and without any *piſtillum*. 4. The ſeeds devoid of both lobes, or *cotyledones*, and proper coverings; ſo that they exhibit the naked embryo. This order is ſubdivided into 11 genera, from the preſence or abſence of the calyx, which on theſe plants is a veil or cover like a monk's cawl, that is placed over the male organs or tops of the ſtamina, and is denominated *calyptra*, from the ſexes of the plants, which bear male and female flowers, ſometimes on the ſame, ſometimes on diſtinct roots; and from the manner of growth of the female flowers, which are ſometimes produced ſingly, ſometimes in bunches or cones. Theſe diſtinctions are moſtly borrowed from Dillenius, whoſe merit in developing this part of the vegetable kingdom Linnæus acknowledges. The manner of feeding of moſſes in general may be more clearly underſtood, from the deſcription of that genus of them which has been traced through all its ſtages, and to which moſt of the others, though every genus has its diſtinct fructification in ſome reſpects, bear a very great general analogy. This genus is the HYPNUM. The ſpecies of this are very numerous and common; but that particular one which was the ſubject of theſe obſervations, is the ſhort branched ſilky kind, common on old walls; and called by that author in his hiſtory *hypnum vulgare, ſericum, recurvum, capſulis erectis cuſpidatis*. The head of this moſs appears to the naked eye a ſmall, ſmooth, browniſh yellow, oblong body, about a ninth of an inch long; this is covered at its upper end with a membranaceous calyptra or hood, in ſhape reſembling an extinguiſher, or a funnel inverted. When this calyptra is taken off, and the head viewed with a microſcope, the ſurface of it is ſeen to be ridged with longitudinal ſtriæ. The baſis of the head is of a deep orange colour, and more opaque than the reſt; and the top is bounded by an orange coloured ring, ſwelling out ſomething beyond the ſurface of the contiguous parts of the head. Good glaſſes ſhow, that in this head there are not wanting the parts eſſential to the fructification of what are uſually called the more perfect plants. This ring is truly a monophyllous undulated calyx, within which ariſe 16 pyramidal fimbriated ſtamina; theſe are of a pale greeniſh colour, and are loaded with a whitiſh oval farina. The ſtamina all bend toward each other from their baſes, and almoſt meet in a point at the tops. This is their appearance when the head is nearly ripe; and immediately under the arch formed by theſe ſtamina, is a cylindric hollow piſtillum, through which the farina makes its way, and is diſperſed among the ſeeds in the head; the fruit is a large capſule, filling every part of the membrane, which ſhows itſelf on the outſide of the head, and in moſt places is contiguous to it: this capſule is filled with perfect and very beautiful ſeeds: they are round, tranſparent when unripe, but afterwards opaque, and of a very beautiful green, which colour they retain even when dried. When this head is firſt produced from the plant, the ſtamina are very ſlender, and ſtand erect; the head is ſcarce any thicker than the ſtalk, and the calyptra covers it all over, to ſhield the tender ſubſtance of the farina from external injuries. As the farina afterwards ſwells in the ſtamina, the ſeeds in the head increaſe alſo in bulk, and by their increaſe the head is more extended in thickneſs; and the ſtamina are by theſe means ſeparated farther and farther from each other at their baſes, but bend inwards toward their points, ſo as to form a kind of arched covering over the ſtigma of the piſtillum, which is ſingle; and from hence the farina falls as it ripens into the head, and impregnates the ſeeds. The 11 principal genera were formerly reckoned, *Lycopodium, polytrichum, bryum, ſelagines, uſneæ, mnium, byſſi, ſphagnum, hypnum, conſervæ,* and *fontinalis*. Theſe are found growing on the bark of trees as well as on the ground. See *Plates* CCXXX and CCXXXI. But the *Selago* is now ranked as a ſpecies of LYCOPODIUM; the *Uſnea* as a ſpecies of LICHEN; and the *Byſſus* and *Conferva* are transferred to the order of ALGÆ; (ſee SEA PLANTS;) and inſtead of theſe, the BUXBAUMIA, PHASCUM, PORELLA, and SPLACHNUM, are now arranged among the muſci. See BOTANY, *Index*. Moſſes, by the inconſiderate, are generally deemed an uſeleſs or inſignificant part of the creation. That they are not, is certain, as He who made them has made nothing in vain. Many of their uſes we know; that they have many more which we know not, is unqueſtionable, as there is probably no one thing in the univerſe of which we dare to aſſert that we know all the uſes. This much we are certain of, that as they flouriſh moſt in winter, when they cover the ground with a beautiful green carpet, in many places which would be otherwiſe naked, and when little verdure is elſewhere to be ſeen; ſo at the ſame time they ſhelter and preſerve the ſeeds, roots, gems, and embryo plants of many vegetables, which would otherwiſe periſh; they furniſh materials for birds to build their neſts with; they afford a warm winter's retreat for ſome quadrupeds, ſuch as bears, dormice, and the like; and for numberleſs inſects, which are the food of birds and fiſhes, and theſe again the food or delight of men. Many of them grow on rocky and barren places, and, rotting away, afford the firſt principles of vegetation to other plants, which could never otherwiſe have taken root there. Others grow in bogs and marſhes, and by continual increaſe and decay fill up and convert them entirely into fertile paſtures, or into peat-bogs, the ſource of inexhauſtible fuel to the polar regions.—They are applicable alſo to many domeſtic purpoſes; ſome of the lycopodiums are uſed in dyeing yarn and in medicine; the ſphagnum and polytrichum furniſh convenient beds for the Laplanders; the hypnums are uſed in tiling houſes, ſtopping crevices in walls, packing up of brittle wares and roots of plants for diſtant conveyance.—To which may be added, that all in general contribute entertainment and inſtruction to the contemplative naturaliſt, at a ſeaſon when few other plants are to be ſeen.

(3.) MUSCI, is likewiſe the name of the 56th order in Linnæus's Fragments of a Natural Method. See BOTANY, *Index*.

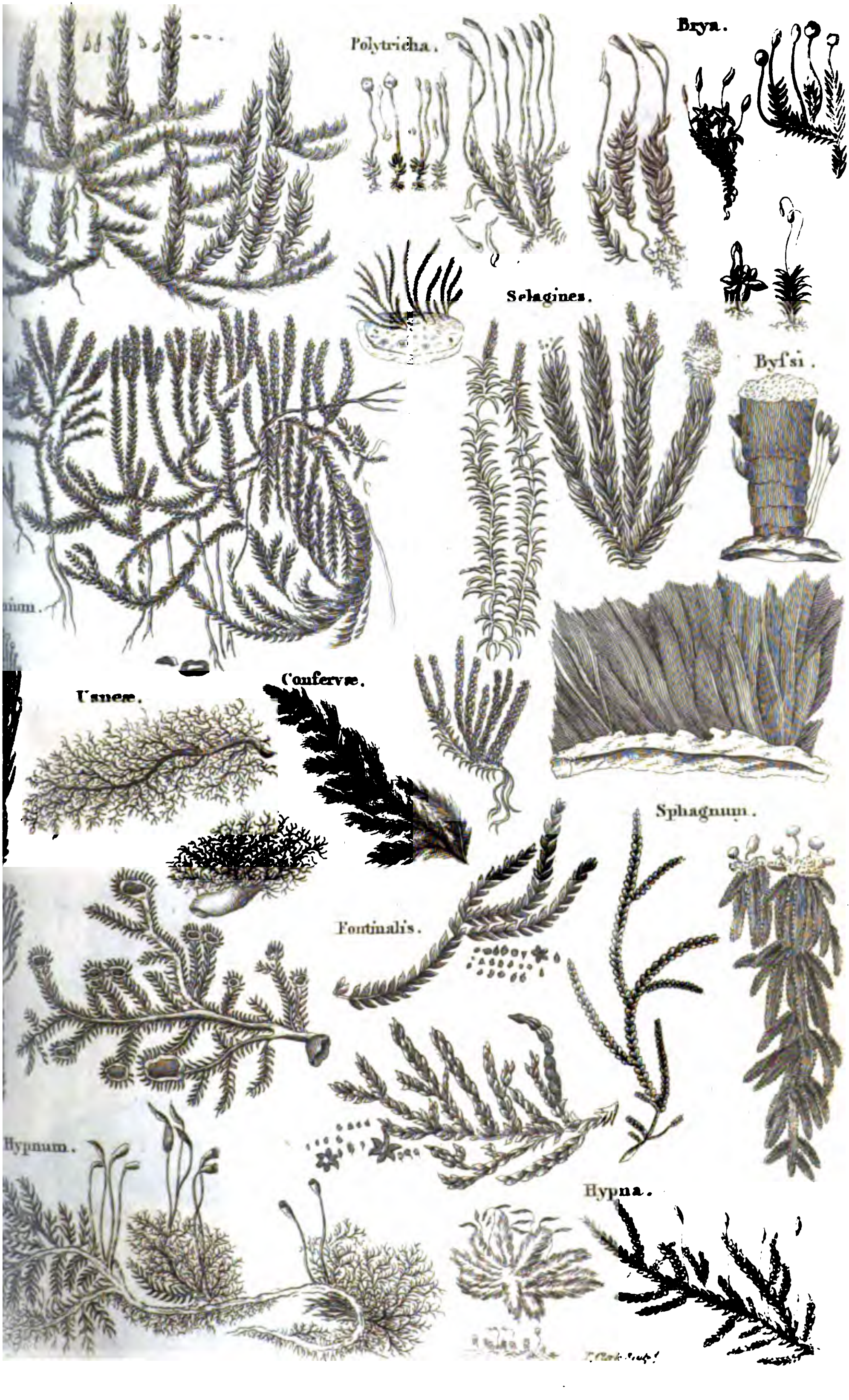
MUSCICAPA, the FLY-CATCHER, a genus of birds belonging to the order of paſſeres. The bill is flatted at the baſe, almoſt triangular, notched at the upper mandible, and beſet with briſtles; the toes generally divided as far as their origin. The ſpecies are very numerous. Dr Gmelin enumerates 92, in the *Syſt. Nat.* and Mr Latham 93, in his *Index Ornithologicus*. Of theſe we ſhall only deſcribe 7; viz.

1 MUSCICAPA CAROLINENSIS, or CARISONENSIS, the *cat-bird*, is ſomewhat bigger than a lark: length 8 inches; bill black; the upper parts of the body and wings of a deep brown; the under aſh-coloured: the crown of the head is black; the tail blackiſh; the legs are brown. This ſpecies is found in Virginia in the ſummer ſeaſon; where they frequent ſhrubs rather than tall trees, and feed on inſects: their cry reſembles that of a cat, whence the Engliſh name given by Cateſby. See *Plate* CCXXV, *fig.* 7.

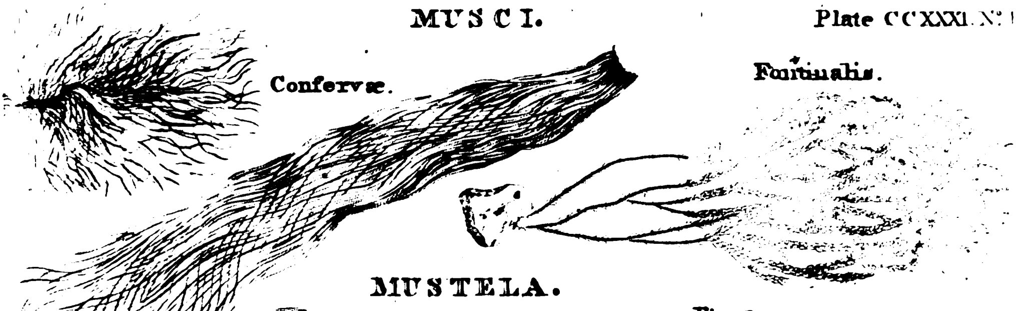
2. MUSCICAPA CRINITA, the creſted fly-catcher, is about the ſize of a lark: the head is creſted, and of a dull green; the hind part of the neck and back are of the ſame colour; the under parts from the chin to the breaſt of an aſh-colour, and thence to the vent yellow: the legs are black. See *Plate* CCXXV, *fig.* 8. Theſe inhabit Carolina and Virginia in ſummer; build there, and depart in autumn.

3. MUSCICAPA FLABELLIFERA, the fan-tailed fly-catcher, is in length ſix inches and a half: the head is black, which colour deſcends on the back part lower than the nape, whence it paſſes forward in a narrow collar to the throat; the chin, throat, and ſides of the neck, except where this collar paſſes, are white; and over the eye is a white ſtreak like an eye-brow: the upper parts of the body are olive brown; the under parts yellowiſh

Lycopodia. **MUSCI Moſses.** **Plate CCXXX.**



MUSCI.



Conferva.

Fontinalis.

MUSTELA.

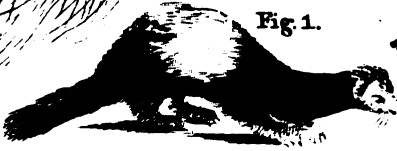


Fig. 1.

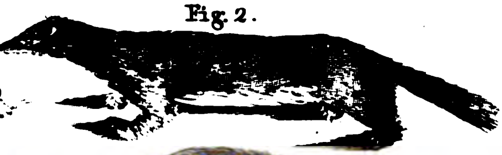


Fig. 2.

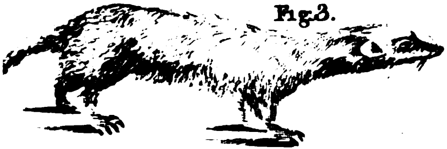


Fig. 3.

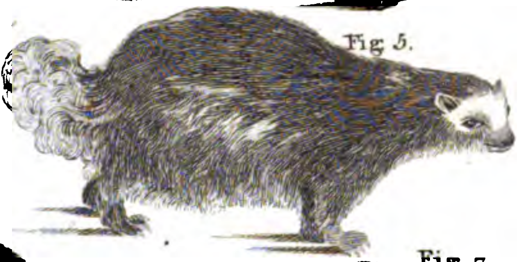


Fig. 5.

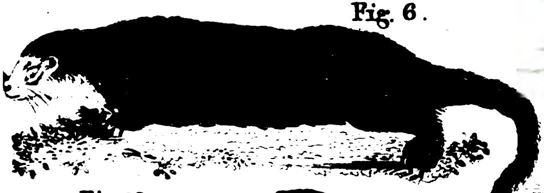


Fig. 6.

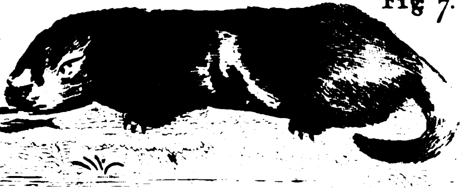


Fig. 7.

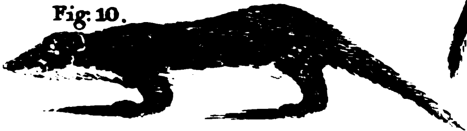


Fig. 10.

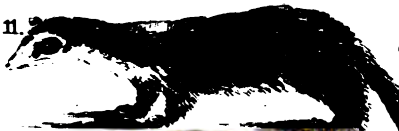


Fig. 11.

Fig. 4.

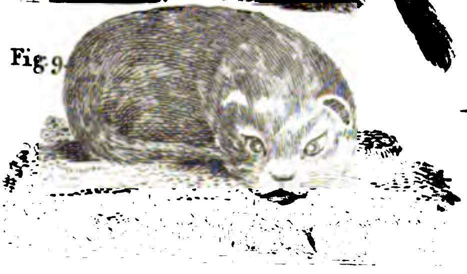
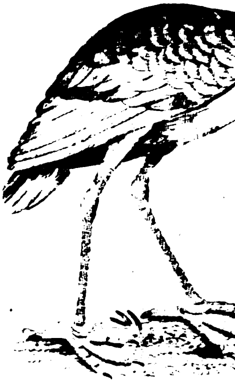
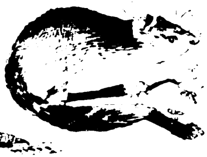


Fig. 9.

Myoxus Fig. 2.



Mycteria *Americana.*



Myoxus Fig. 1.

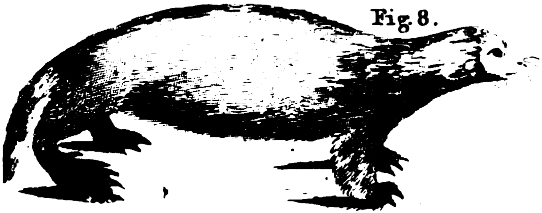
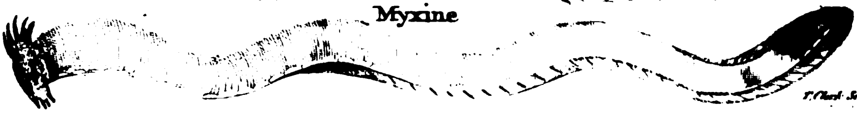


Fig. 8.



Myxine

T. Clark Sculp.t

aſt, growing whitiſh towards the vent; the tail longer than the body; the two middle feahers black; the others are white; the legs are uſky. This ſpecies inhabit the S. iſle of New Zealand; where they are ſeen conſtantly hunting ter inſects. They fly always with their tails in hape of a fan. They are eaſily tamed; and will hen ſit on any perſon's ſhoulder, and pick off the ies. They have a chirping kind of note; and are alled by the natives *Diggo-wagh-wagh*. There a beautiful figure of one in Mr Latham's *Synopis*, Plate XLIX.

4. **Muscicapa Grisola**, the ſpotted fly-cat- her, is about 5¼ inches long. The head is large, f a browniſh hue, ſpotted obſcurely with black: he back is of a mouſe-colour; the wings and tail re duſky; the breaſt and belly white; the throat nd ſides under the wings daſhed with red; the egs and feet are ſhort and black. It is a bird of aſſage; appears here in ſpring; breeds with us, nd departs in September. It builds its neſt gainſt any part of a tree that will ſupport it; of- en in the hollow cauſed by the decay of ſome arge limb, hole in a wall, &c. alſo on old poſts nd beams of barns; and returns to the ſame place eaſon after ſeaſon. It lays 4 or 5 pale eggs mark- d with reddiſh. It feeds on inſects, and collects hem on the wing. When the young can fly, the ld ones retire with them into thick woods, where hey frolic among the top branches; dropping rom the boughs often quite perpendicular on the ies that ſport beneath, and riſing again in the ame direction. They will alſo ſtand on the top f ſome ſtake or poſt, whence they ſpring forth n their prey, returning ſtill to the ſame ſtand for many times together. They feed alſo on cherries.

5. **Muscicapa Pondiceriana**, the *Pondicherry* or *Coromandel fly-catcher*, is rather bigger than a ſparrow. The general colour of the upper parts is a cinereous grey; the throat, breaſt, and belly, white; the legs black. It inhabits the coaſt of Coromandel; where, from the agreeableneſs of its ſong, it is called the *Indian nightingale*.

6. **Muscicapa Rubra**, the ſummer red bird of Cateſby, is a moſt beautiful ſpecies, ſomewhat bigger than a ſparrow: the bill is yellowiſh; the eyes are black; the legs duſky; the male is wholly of a ſcarlet colour, except the tips of the quill-feathers, which are of a duſky red: the colour of the female is brown tinged with yellow. They inhabit Carolina and Virginia in ſummer. See *Plate* CCXXVIII. *Fig.* 40.

7. **Muscicapa Rubricollus**, purple throated fly-catcher, is about the ſize of a blackbird: the whole plumage is black, except the chin, throat, and fore part of the neck, on which is a large bed of beautiful crimſon, inclining to purple: the legs are black. Theſe birds inhabit Cayenne and other parts of S. America; where they are found in flocks, and precede, in general, the toucans in their movements. They feed on fruits and inſects; are lively and always in action. They for the moſt part frequent the woods, like the toucans; and where the firſt are found the others are ſeldom far off.

MUSCKA, a lordſhip of Luſatia, 30 miles in circumference, with its capital, 52 miles NE. of Dreſden.

(1.) * **MUSCLE.** *n. ſ.* [*muſcle*, Fr. *muſculus*, Lat. *muſcula*. Saxon.] 1. *Muſcle* is a bundle of thin and parallel plates of fleſhy threads or fibres, incloſed by one common membrane: all the fibres of the ſame plate are parallel to one another, and tied together at extremely little diſtances by ſhort and tranſverſe fibres: the fleſhy fibres are compoſed of other ſmaller fibres, incloſed likewiſe by a common membrane: each leſſer fibre conſiſts of very ſmall veſicles or bladders, into which, we ſuppoſe, the veins, arteries, and nerves to open; for every muſcle receives branches of all thoſe veſſels, which muſt be diſtributed to every fibre: the two ends of each muſcle, or the extremities of the fibres, are, in the limbs of animals, faſtened to two bones, the one moveable, the other fixed; and therefore, when the muſcles contract, they draw the moveable bone according to the direction of their fibres. *Quincy.*—The inſtruments of motion are the *muſcles*, the fibres whereof, contracting themſelves, move the ſeveral parts of the body. *Locke.* 2. A bivalve ſhell-fiſh.—Of ſhell-fiſh, there are wrinklers, limpers, cockles, and *muſcles*. *Carew.*—It is the obſervation of Ariſtotle, that oyſters and *muſcles* grow fuller in the waxing of the moon. *Hakewill.*—Two pair of ſmall *muſcle* ſhells were found in a limeſtone quarry. *Woodward.*

(2.) **Muscle**, in zoology. See **Mytilus**, Nº 6.

(3.) **Muscle**, in anotomy. See **Anatomy**, *Index*. The motion of the muſcles of animals has been thought a matter of ſuch importance, that an annual lecture upon it was founded by Dr Croone, one of the original members of the Royal Society at London. The inveſtigation of the ſubject hath accordingly exerciſed the pens of many very learned and ingenious men; notwithſtanding which it ſtill remains involved in much obſcurity. Many curious obſervations, however, have been made; and as far as the laws of *dead* mechaniſm can be applied to a *living* machine, the inveſtigators have been ſucceſsful; but ſtill there has been a *ne plus ultra*, a certain barrier, by which their inveſtigations have been limited, which no perſon has hitherto been able to paſs, and which it is very improbable ever will be paſſed. To give an account of all the different theories which have appeared on this ſubject is impoſſible; but in 1788 a lecture on the ſubject was delivered by Dr Blane, F. R. S. of which, as it ſeems to contain the ſubſtance of all that has been ſaid upon the ſubject, we ſhall give an abridgement.

(4.) **Muscles, Dr Blane's description of, and remarks on.** The Doctor conſiders as muſcles, not only thoſe large maſſes of fleſh which compoſe ſo great a part of the bulk of the body, but likewiſe all the minuter organs ſubſervient to circulation, nutrition, and ſecretion; ſince, not only the heart itſelf, but the whole vaſcular ſyſtem and the inteſtines, owe their action to certain powers of irritability and contractility peculiar to muſcular fibres. The firſt and moſt obvious conſiderations with reſpect to the muſcles is the regular organization of their fibres in a parallel direction. In this they are diſtinguiſhed from every other matter of a fibrous ſtructure, whether vegetable or mineral, by a certain degree of moiſture, tenacity, and elaſticity, entirely peculiar to

themſelve

themſelves. The fibres of the muſcles viſible to the naked eye are compoſed of others diſcoverable by glaſſes, and theſe others of fibres ſtill ſmaller; neither hath any perſon been able to diſcover the ultimately fine fibres of a muſcle, which are not compoſed of others. Some have indeed imagined that they have been able to do this, but their obſervations have been found fallacious; and it is now univerſally allowed that the fibres are diviſible beyond what the beſt aſſiſted ſight can trace, and that they are to all appearance uniform. In this regular and fibrous organization they reſemble the cryſtals of ſalts, many of which are found compoſed of fibres more and more fine, and which, like thoſe of the muſcles, can never be ultimately traced. The Doctor next touches a little upon the VIS INERTIÆ of matter; and, contrary to the generally received opinion of modern philoſophers, conſiders matter as an active ſubſtance. What is called the *vis inertiæ*, he thinks, "is not a reſiſtance of change from reſt to motion, or from motion to reſt, but a reſiſtance to acceleration or retardation, or to change of direction." The activity of matter is further proved, by the attractions and repulſions which take place univerſally among its parts; and every inſtance of motion within the cognizance of our ſenſes, may be referred, either in itſelf or its cauſe, to ſome mode of attraction or repulſion. Theſe may both be conſidered as one principle, being both expreſſive of that ſtate of activity originally inherent in matter; and becauſe any two particles, having affinity with each other, muſt either attract or repel, according to their diſtance, their common temperature, and other circumſtances; and it is ſo univerſal an agent in nature, that ſome modern philoſophers have made it abſorb, as it were, every other power and property in matter. It is evident, however, whether this hypotheſis be juſt or not, that the cauſe of muſcular motion cannot be referred to mechaniſm, which is itſelf only a ſecondary principle. Some have had recourſe to a fluid conveyed into the fibres of muſcles, by which they were ſwelled, and thereby ſhortened. One of the moſt plauſible of theſe hypotheſes ſuppoſes this fluid to be the blood: but this is plainly a *petitio principii*; for in order to ſet the blood in motion, muſcular motion is neceſſary. Other fluids have been ſuppoſed to have this effect; but even the exiſtence of theſe has not been proved, and indeed the moſt ſolid objections might be brought againſt all the theories that have hitherto been invented.

(5.) MUSCLES, DR BLANE'S EXPERIMENTS ON. Our author having now eſtabliſhed it as a maxim, that the primary properties of matter are attraction and repulſion, and that mechaniſm is only a ſecondary property, he next conſiders muſcular motion as referable to an original law of animated matter, whereby its particles are endowed with an attractive power, for which no cauſe can be aſſigned, any more than for gravitation, coheſion, or chemical affinity. If the ſhortening of a muſcular fibre depend on this increaſed power of attraction between its particles, the effect will be, to add to the power of coheſion in the fibre; and to determine this the Doctor made the following experiment: Having taken the flexor muſcle of the thumb of a man newly dead while yet warm and flexible, he appended a weight to it, continually augmenting it until the muſcle broke; and this he found was done when 26 lb. had been added; yet a living man of the ſame apparent ſtrength and age could with eaſe lift a weight of 38 lb. by the exertions of the ſame muſcle. "It is farther in proof of this fact (adds he), that in the caſe of a violent ſtrain from muſcular contraction in the living body, it is the tendon that gives way; whereas we have ſeen that in the dead body the muſcle is the weaker of the two. It is alſo well known, that, in caſes of our exertion, the muſcular fibres themſelves do not give way, though the ſtrongeſt tendons, ſuch as the tendo Achillis, and even bones, ſuch as the knee-pan, are broke by their living force, which, in ſuch inſtances, muſt be many times greater than the ſtrength of the dead fibres. There is a caſe related in the *Philoſ. Tranſ.* by Mr Amyand, wherein the *os humeri* was broken by an exertion of the muſcles. Every one has heard of fractures happening from very ſlight accidents. Theſe occur moſt probably from a jerk of the muſcles concurring with the external violence. The ſenſible increaſe of hardneſs in a muſcle, when in a ſtate of contraction, may alſo be conſidered as a proof of an increaſed attraction of its particulars to each other at that time." The Doctor next conſiders whether or not a muſcle, when in a ſtate of contraction, undergoes any change of denſity. "Every homogeneous body (ſays he) poſſeſſes a certain degree of denſity, determined by the diſtance of its integrant particles. The moſt common means in nature by which the denſity of ſuch bodies is altered are heat and cold: the one univerſally producing expanſion, the other condenſation. Whether mechanical force has the ſame effects, is a point in natural philoſophy not ſo well aſcertained; for though tenſion and colliſion produce in ſolid elaſtic bodies a change of figure, which they immediately reſume when the force is withdrawn, it has not been inquired whether, in ſuch caſes, a change of denſity takes place while the body is in a ſtate of elongation or compreſſion. Two elaſtic balls in the act of colliſion undergo a momentary change of figure, ſo that there muſt be an approximation of particles in the direction in which they are flattened; and in the elongation of an elaſtic cord, by tenſion, there muſt be an increaſed diſtance of the particles in one direction; but while theſe changes take place in one dimenſion of the reſpective bodies, they may be compenſated by contrary changes in the other dimenſions, ſo that the ſeveral bodies may preſerve, upon the whole, the ſame ſolid contents. To aſcertain this in the caſe of tenſion, which is the only caſe bearing analogy to muſcular motion, I made the following experiment: I took a piece of the elaſtic gum of *caoutchouk*, 3 inches ſquare, and about the 8th of an inch in thickneſs; I procured a piece of ſheet tin 3 inches broad and about ſix inches long, cut into ſharp teeth at each end. The gum was firſt weighed in air, and found to be 380·25 grains. It was then weighed in water along with the tin, to which it was looſely attached, and the weight of both was then 758·75 grains. The gum was then ſtretched upon the tin by means of the teeth at each end to a ſurface of about 5 inches ſquare, the tin being bent ſo as to leave a free ſpace between it and the gum, that when immerſed in water no air-bubbles might be entangled. In this ſituation, the weight of both in water was found to be 746·75 grains. Here was a difference of 12 grains, which could be owing only to a diminution of ſpecific gravity; and in order to be ſure that there was no fallacy nor inaccuracy in the experiment, the gum was immediately diſengaged from one end of the tin ſo as to allow it to ſhrink; and being again weighed in this ſtate in the water, it was found to have recovered exactly its former weight. From this experiment, the Doctor argues to what may probably happen in the contraction of the muſcles. "This point (he ſays) cannot be decided but by an experimental examination. It might be determined whether a muſcle occupies moſt ſpace when relaxed or when contracted, by finding its ſpecific gravity in each of thoſe ſtates by means of the hydroſtatical balance. But this would be found extremely difficult; for the ſtate of contraction is very tranſitory, and the motion itſelf would produce ſuch a diſturbance as would render the reſult unſatisfactory. As there is this obſtacle to an experiment on a living muſcle, it occurred to me that it might be performed on the muſcles of a fiſh which had undergone the operation of *crimping*, as it is called; for in conſequence of dividing the muſcles, by cutting them when alive, they undergo a contraction which continues after death; and upon comparing, by the hydroſtatical balance, portions of muſcles which had been crimped with thoſe of the oppoſite ſide of the ſame fiſh which had on purpoſe been ſaved from this operation, it did not appear that there was any difference in the ſpecific gravity. Two trials were made; one with the maſſeter muſcle of a ſkate, the other with the ſides of a large trout." To determine whether the contraction or relaxation of a living muſcle made any alteration in its denſity, our author took one half of a living eel, and put it into a glaſs flaſk, of which the mouth was afterwards fuſed by a blow-pipe, and drawn out like the ſtem of a thermometer. The flaſk and tube being then filled with water, he obſerved, with great attention, whether the convulſive agonies of the creature would make the fluid riſe or fall; but it did neither. The tail part of the eel was made uſe of in this experiment, that there might be no deception from the other, which contained the organs of reſpiration and the air bladder. In one of his trials, the tail portions of two eels were introduced into the flaſk; but though they were frequently both in convulſions at once, not the leaſt motion of the fluid in the tube could be perceived. On this occaſion alſo the Doctor made ſome experiments to decide the queſtion, whether the mere circumſtance of *life* made any alteration in the gravity of the bodies? His firſt trials were with animals of warm blood incloſed in oil-ſkin and cloſe tin veſſels; but not being ſatisfied with the accuracy of theſe, from the difficulty of cutting off all communication with the external air, he incloſed live eels in flaſks; and having ſealed them hermetically, he found that the weight of them when alive and dead was the very ſame.

(6.) **MUSCLES, DR BLANE's HYPOTHESIS AS TO THE CONTRACTION, &c. OF THE.** The reſult of all our author's experiments is, that "contraction of a muſcle produces no change in its denſity, and that animal life differs from inanimate matter in this reſpect, as well as in moſt of its other properties and laws. One purpoſe in nature for muſcles always preſerving the ſame denſity may be, that as ſome of them act in confined cavities, inconveniences might ariſe from their occupying more ſpace at one time than at another. In the extremities of cruſtaceous animals, for inſtance, which are filled with muſcles, a change of denſity would be apt to burſt them. —Another circumſtance in which the contractions of muſcles differ from ſimple elaſticity is, that the former, however frequent and violent, does not produce any heat, as colliſion and tenſion are known to do. This may admit of ſome cavil with regard to animals of warm blood; for one of the theories with regard to animal heat is, that it ariſes from the perpetual vibration of muſcular fibres, particulary thoſe of the vaſcular ſyſtem; but this will not hold with reſpect to animals of cold blood, in which the actions of life are equally vigorous. The principal phenomena, therefore, of muſcular motion are, the ſhortening of the fibres, the lateral ſwell, the increaſe of coheſion and hardneſs, and the unchanged denſity and temperature. It would appear from the two laſt circumſtances, that the intimate motions of the particles in relation to one another muſt be different from what takes place in the ſeveral inſtances of contraction and expanſion of dead bodies. In the expanſion ariſing from the action of heat and the contraction from cold, the change of denſity ſhews, that in the one caſe the ultimate particles muſt recede from each other, and in the other they muſt approach. The ſame may be ſaid of elaſticity. But as there is no alteration in the denſity of a muſcle in paſſing from relaxation to contraction, this change cannot conſiſt in the approximation of the integrant parts of the fibres, but muſt depend on ſome other circumſtances in the intimate diſpoſitions of the particles. In attempting to conceive in what this conſiſts, the following explanation may be offered. It is probable that the regular ſtructure of ſolid bodies depends on the polarity and ſhape of their integrant parts. Now all bodies, except ſuch as are ſpherical, muſt have a long and a ſhort axis; and let us imagine the fibres of muſcles to be compoſed of ſpheroidal particles, we may then conceive relaxation to conſiſt in their being diſpoſed with their long axis in the line of their fibres, and contraction to conſiſt in their ſhort axis being diſpoſed more or leſs in that direction. This will not only account for the decurtation and uniform denſity, but for the lateral ſwell, and alſo for the increaſed hardneſs and coheſion; for though the particles do not approach or recede, as in bodies ſimply elaſtic, yet their power of attraction will be increaſed by their centres being brought nearer, and by being applied to each other by more oblate ſurfaces. This hypotheſis accords with what has been before proved concerning the unchangeable denſity, for what is loſt in one dimenſion is gained in another; and the cauſe for there being no increaſe in temperature depends probably on the ſame circumſtance by which the denſity is preſerved unaltered." Thus far the Doctor has proceeded upon a plan, which ſeems plauſible by hypotheſis at leaſt; but in the proſecution of his ſubject he is involved in the ſame difficulty which has proved too hard for every other perſon, and which he, indeed, does not attempt to ſolve. This is the action of ſtimuli, by which the muſcles are exerted to contraction, and upon which all the phenomena of life depend, and which indeed is the thing that particularly ought to be explained: but of this our author is forced to confeſs his entire ignorance, and to content himſelf with enumerating the ſtimuli of which he cannot explain the action. Stimuli, then, according to him, are divided into internal and external. An example of the former kind is the circulation of the blood, which is kept up by an exciting influence of the blood upon the heart and veſſels which contain and impel it. The earlieſt perceivable inſtance of muſcular motion is the beating of the heart, as it is ſeen in the firſt rudiments of the embryo in an egg, and called the *punctum ſaliens*. There ſeems to be eſtabliſhed by nature a certain habitude of action between the veſſels and their fluids; for if a fluid, even more mild than the blood, ſuch as milk, be injected into the circulation, it will produce great diſturbance; and if the blood, by being deprived of the influence of reſpirable air, becomes deſtitute of a certain property which it would naturally acquire in the act of reſpiration, it does not prove a ſtimulus to the heart. In like manner, all the containing parts are accommodated to the nature of their reſpective contents.—The inteſtines are ſo calculated as to have proper motions excited in them by the aliment and the ſecretions mixed with it; and there are bodies which, though perfectly mild, ſuch as alimentary ſubſtances of difficult digeſtion, yet excite more violent commotions in the ſtomach than other ſubſtances which are very acrimonious. The various effects of poiſons in different parts of the body may alſo be mentioned as an illuſtration of the peculiar ſuſceptibility of the ſeveral organs of the body. The poiſon of a viper, for inſtance, is perfectly innocent, not only in the receptacles of the animal which produces it, but may be taken into the ſtomach of any animal without the leaſt bad effect, and only exerts its deleterious power when brought in contact with a wounded part. Some vegetable poiſons, on the contrary, ſuch as that of laurel water, prove deadly when taken into the mouth, or applied to any part of the alimentary canal, but are innocent when injected into the veins. The receptacles of the ſeveral ſecreted fluids, ſuch as the gall bladder and bladder of urine, are ſo adapted to their natural contents, by a due meaſure of irritability, as to bear the accumulation to a certain degree, and then to expel them. We have here alſo a proof that irritability is not in proportion to ſenſibility; for both theſe receptacles are extremely ſenſible to pain and irritation from extraneous acrimony, though ſo moderately ſenſible to the acrimony of their natural contents. This diſpoſition in the ſeveral organs to perform their natural functions, in conſequence of the ſtimulus of the reſpective fluids they contain, has aptly enough been called the *natural perception* of theſe organs. Our author now conſidering that the external organs are calculated to perform their functions in conſequence of certain ſtimuli, concludes that the application of chemical and mechanical ſtimuli is not a mode of experiment likely to produce uſeful knowledge; and hence he thinks, we may ſuggeſt the moſt likely means of reſtoring loſt irritability and action to the vital functions, when ſuſpended by ſuffocation, ſtrangulation, or immerſion. In theſe caſes, he finds that all other means are far inferior to that of inflating the lungs with atmoſpheric air, and ſtroking and preſſing the ribs in ſuch a manner as to imitate natural reſpiration. The only other thing which he ſuppoſes to be any way uſeful, is the application of heat to ſuch as have been immerſed in cold water; but of cool air to thoſe who have ſuffered from mephitic vapours.

(7.) MUSCLES, DR BLANE'S THEORY AND EXPERIMENTS AS TO THE MOTION OF THE. The Doctor, having then conſidered ſome other parts of the animal economy, enters into an inveſtigation of the analogy between motion and ſenſation. "This analogy (ſays he) is the more exact, that the nerves ſeem to be the inſtruments of both; for not only the organs of ſenſation and voluntary motion, but thoſe of involuntary motion, are ſupplied with nerves, and dependent upon them; for if the influence of the nerves leading to the heart or inteſtines is interrupted by cutting, ligature, or palſy, the function of theſe parts is thereby deſtroyed. Thus, as there is a peculiar ſenſibility belonging to the ſeveral ſenſes, ſo is there a peculiar irritability belonging to the ſeveral organs of motion. The intention of nature, therefore, in diſtinguiſhing nerves to every muſcular organ, was probably in order to conſtitute thoſe peculiar perceptions on which the various vital and natural functions depend. But I give this only as a conjecture; and though the nervous influence may thus *modify* irritability, there is reaſon to think that it does not *beſtow* it." Our author controverts the principle which has been held by ſome very able phyſiologiſts, that all muſcular irritability depends upon a ſentient principle. "There have been ſeveral inſtances (ſays he) of the production of fœtuſes without the brain; and a principal fact in defence of this opinion is, the exiſtence of animals without brain or nerves. That there are ſuch, was, I believe, firſt obſerved by Haller, and has been confirmed by Mr Hunter; who maintains farther, that the ſtomach is the centre or ſeat of life more eſſential to it than the brain. That the ſtomach ſhould be an organ of ſo much conſequence, ſeems natural enough from the importance of its function, which is that of aſſimilation; and life can be more immediately and completely extinguiſhed by an injury to it, ſuch as a blow, than by the ſame violence to any other part of the body. It is alſo well known, that the muſcular fibres of animals, endowed with a nervous ſyſtem, will retain their irritability for ſome time after their ſeparation from the brain and nerves.—It is evident likewiſe, from the phenomena of vegetation, that irritability may exiſt in nature without ſenſation, conſciouſneſs, or any

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ſpicion of the exiſtence of a nervous ſyſtem. In vour of this opinion, it is farther obſervable, at thoſe animals which are deſtitute of brain or erves are of the claſs of VERMES, the moſt ſimple nature, having only one function, viz. that of ſimilation; and therefore not requiring that va- ety of action, and thoſe perceptions which are culiar to more complex animals. Laſtly, the te of an egg before incubation, and the condi- on of thoſe animals which become torpid from ld, and afterwards revive, afford facts which vour this opinion; as they ſhow that there is a rtain principle of ſelf-preſervation, independent t only of the operation of the nervous ſyſtem, t even of the circulation; for in this quieſcent te, thoſe portions of animal matter are preſer- d for a great length of time from that corrup- on to which they would otherwiſe be liable, and eir fluids are prevented from freezing in a degree of cold which would congeal them, were they deſtitute of every principle of life." In the courſe of his reaſoning, our author conſiders the nervous ſyſtem not only as a mere appendage to life, but as tending to impede its operation, and ſhorten its exiſtence. "Simple life (adds he) will not only ſurvive ſenſation, but will ſurvive it longer, if the animal is killed by deſtroying the nervous ſyſtem, than if it had been deſtroyed by hæmorrhagy, ſuffocation, or other violence. If a fiſh, immediately upon being taken out of the water, be ſtunned by a violent blow on the head, or by having the head cruſhed, the irritability and ſweetneſs of the muſcles will be preſerved much longer than if it had been allowed to die with the organs of ſenſe entire. This is ſo well known to fiſhermen, that they put it in practice in order to make them longer ſuſceptible of the operation called *crimping*. A ſalmon is one of the fiſhes leaſt tenacious of life, inſomuch that it will loſe all ſigns of life in leſs than half an hour after it is taken out of the water, if ſuffered to die without any farther injury; but if, immediately after being caught, it receives a violent blow on the head, the muſcles will ſhow viſible irritability for more than 12 hours afterwards." To the ſame purpoſe, our author obſerves, that in warm-blooded animals an exceſſive exertion of voluntary motion immediately before death, prevents the muſcles from being rigid when cold, and renders them more prone to putrefaction. Thus if an ox is killed immediately after being overdrove, the carcaſe will not become ſtiff when it grows cold, nor is it capable of being preſerved by means of ſalt. In confirmation of the ſame hypotheſis alſo, our author obſerves, that in ſome diſorders of the brain, ſuch as hydrocephalus, and apoplectic palſy, in which the functions of the brain are ſuſpended, the office of digeſtion is ſometimes better performed than in health. From all this our author concludes, along with Mr Hunter, that the exerciſe of ſenſation is inimical to life, and that a ſort of fatigue is induced by this as well as by voluntary motion; "ſo that all that intercourſe carried on through the nerves, whether *towards* the brain in the caſe of ſenſation, or *from* the brain in acts of volition, tends to wear out the animal powers. And as intenſe and long-continued thought, though not terminating in any outward action, tends alſo to produce an inability for farther exertions, it would appear that the brain or ſenſorium is more particularly the organ which is ſubject to that ſpecies of ſufferance called *fatigue*. From theſe facts we perceive the neceſſity of SLEEP, which conſiſts in a temporary ſuſpenſion of ſenſation, volition, and thought, and is a reſource of nature, whereby the powers of life recover themſelves after ſatiety and fatigue, which are provided as guards to warn us when nature is in danger of being ſtrained, either by repletion or overexertion; and it is evident that ſuch barriers were abſolutely neceſſary, to ſet bounds to operations which are only occaſionally requiſite, and which would otherwiſe depend on the caprice of the will. The exerciſe of ſenſation and voluntary motion in a moderate degree is conformable to the intention of nature, and therefore ſalutary; and it is only when they are exceſſive, that they tend to wear out the powers of life, and more eſpecially if theſe are not duly recruited by ſleep. It follows from the ſame principle, that when life is threatened by certain diſeaſes, of which the chief ſymptom is irritation, any means by which ſenſation, whether natural or morbid, and muſcular motion, whether voluntary or involuntary, convulſive or ſpaſmodic, can be ſoothed or ſuſpended, will prove ſalutary, by allowing the powers of life to rally, as it were, and to recover themſelves. In this conſiſts the operation of narcotic medicines, ſuch as opium;—which, in complaints both of a general and local nature, proves uſeful, not merely as a palliative by the removal of temporary pain or ſpaſm, or by procuring ſleep, but as a principal inſtrument of recovery, by allowing the powers of life to exert their natural action, in conſequence of the removal of irritation." In treating this ſubject, the Doctor conſiders the effects of opium as affecting ſimple or ſenſitive life; and to determine this, he made the following experiments: Having made a ſolution of opium in water, he put into one portion of it ſome ſound living eels, and others with their heads bruiſed; and in a number of trials it was found that the ſound eels generally died much ſooner than the bruiſed ones. This, however, was the caſe only when the ſolution was of a certain degree of ſtrength, ſuch as half a grain of opium at leaſt to an ounce of water; for when only about half this ſtrength, the ſound eels lived much longer, the time being then protracted to that in which the bruiſed eels would have died merely in conſequence of their injury; but even the wounded eels died conſiderably ſooner than when put into plain water. From all this, our author concludes, that "the great maſſes of muſcle in the trunk and extremities of the body are the inſtruments of the mind in acting upon external bodies: and we may therefore rank in the liſt of ſtimuli the nervous power by which the will and the paſſions excite external motions. This is a function ſufficiently important for the nerves, without admitting them as the principle on which irritability depends."

(8.) **MUSCLES, Dr BLANE's THEORY OF THE EFFECTS OF THE PASSIONS, HABITS, &c. ON THE.** Having diſclaimed all enquiry into the connection between muſcular motion and volition, the Doctor proceeds to conſider the effects of the different paſſions upon the muſcles. Though theſe are diſtinct from the motions directly produced by the will, yet he conſiders them among thoſe ariſing from conſciouſneſs; "for there are emotions of the mind which have viſible and powerful effects upon the heart and vaſcular ſyſtem, which are organs entirely out of the reach of the will. Not to mention the well-known effects of grief, fear, and joy, which affect the whole circulation, there are certain paſſions and ſentiments which produce partial and local effects. Theſe are eſtabliſhed by nature, either to anſwer ſome important purpoſe in nature, as in the caſe of the congeſtion of the fluids in the parts of generation in conſequence of the venereal appetite, or to ſerve as natural expreſſions, as in the caſe of bluſhing or weeping. One of the moſt ſtriking effects of the paſſions upon muſcular action, is the influence they have upon the ſtrength or mechanical force of the voluntary muſcles. Fear produces debility almoſt amounting to palſy. Courage and ardour of mind, on the contrary, add to the natural ſtrength. When the mind is agitated by ſome intereſting object, and calls upon the body for an extraordinary exertion to effect its end, the muſcles are thereby enabled, as it were by magic, to perform acts of ſtrength of which they would be entirely incapable in cold blood. In circumſtances of danger, for inſtance, where life or honour are at ſtake, exertions are made for overcoming mechanical reſiſtance which ſeem incredible, and would be impoſſible, were not the mind in a ſort of phrenzy; and it is truly admirable in the economy of nature, that an idea in the mind ſhould thus in a moment augment the powers of motion, and inſpire additional reſources of ſtrength adequate to the occaſional calls of life. The great increaſe of ſtrength in maniacs is alſo referable to the paſſions of the mind. Theſe conſiderations would almoſt lead us to doubt, whether the accounts we have of the great feats of ſtrength aſcribed to individuals in the heroic ages be fabulous or not. It is alſo worthy of remark, that, in great and laſting exertions of ſtrength to which men are impelled by active and generous affections, fatigue is not induced in the ſame proportion by many degrees, as by the ſame quantity of muſcular action in the cool and deliberate actions of common life." Having thus diſcuſſed the ſubject of *internal* ſtimuli, our author next proceeds to take notice of the ſecond claſs, viz. ſuch as are *external.* Theſe are either immediate or remote, viz. ſuch as are excited by mechanical means, or by acrimony directly and artificially applied to a muſcular fibre; or ſuch as occur in the inſtances of ſympathy, and in the caſe of thoſe inſtincts which nature has inſtituted for the purpoſe of ſelf-preſervation in brutes, and in the early part of human life. "There are certain habitudes (ſays he) between outward ſtimuli and the moving powers, whereby natural propenſities are conſtituted, equally neceſſary to the ſupport of life as the internal functions. Thus, in a new born animal, the firſt contact of the external air excites the act of reſpiration, and the contact of the nipple excites the act of ſucking; both of which actions are abſolutely neceſſary to the maintenance of life, and require the nice co-operation of a great number of muſcles, prior to all experience. Actions of this kind are called *inſtinctive:* but though different from thoſe of voluntary motion, they nevertheleſs run into one another; ſo that what was at firſt merely inſtinctive, may afterwards become a matter of deliberate choice. The ſame muſcles are the inſtruments of both; and they differ from the muſcles obeying the internal ſtimuli, ſuch as the heart, in being liable to fatigue, and thereby concurring with the exerciſe of ſenſation and of thought, in rendering ſleep neceſſary. There are no muſcles except thoſe of reſpiration, of which the conſtant action is neceſſary to life, and which are void of conſciouſneſs in their ordinary exerciſe, but which are yet in ſome meaſure under the controul of the will. The principal end anſwered by this power of the will over the muſcles of reſpiration in man, is to form and regulate the voice. But, though inſtinctive motions are in ſome caſes convertible into thoſe which are voluntary, they ought by no means to be confounded together; for even thoſe animals which are deſtitute of brain and nerves, are capable of actions evidently of the inſtinctive kind.—A leech, for inſtance, being brought into contact with a living animal, is impelled by an inſtinct of its nature to faſten upon it, and ſuck its blood. There is ſomething very ſimilar to this even in vegetables, as in the caſe of tendrils and creeping plants being ſtimulated by the contact of other bodies to cling round them in a particular direction. (See MOTION, § 10.) Beſides theſe obſervations on the inferior animals, our author brings ſome experiments to ſhow, that inſtinctive actions, even in animals furniſhed with a brain and nerves, do not depend on ſenſation. Having divided the ſpinal marrow of a live kitten a few days old, he irritated the hind-paws by touching them with a hot wire. By this the muſcles of the poſterior extremities were thrown into contractions, ſo as to produce the motion of ſhrinking from the injury; and the ſame effects were obſerved in another kitten of which the head was entirely ſeparated from the body. In repeating this experiment he found, that when the ſpinal marrow was cut through between the lumbar vertebræ and os ſacrum, the poſterior extremities loſt their irritability, but the tail reſumed it. Even the head retained its irritability after it was cut off; as appeared by touching the ears with a hot wire, or by pricking them: "and (ſays our author) as the extremities are alſo irritable, it will not be ſaid that conſciouſneſs and ſenſation exiſt in two ſeparated portions of the body." The effects of habit are then conſidered: and the concluſion from the Doctor's reaſoning upon this ſubject is, that "there is a *co-ordinance*, or pre-eſtabliſhed harmony, as it were, between the faculties of animals and the laws of external matter, which is the foundation of all the inſtinctive habits of animals, as well as the rational conduct of man." To the law of habit have been referred the effects of certain contagions, ſuch as that of the ſmall-pox, which do not produce their effect more than once in life. Having laſtly conſidered the effects of *irritation* upon the human body, the Doctor goes on to conſider a very remarkable property of living muſcles, viz. that of their being in

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a conſtant ſtate of tenſion, more or leſs, independent of any temporary ſtimulus. This is evident from what happens when any muſcle is cut; for then there is an immediate retraction of the ſeparated parts: and that this is their natural ſtate is further proved by the ſpontaneous motion which takes place in conſequence of the relaxation of an antagoniſt muſcle, as when the mouth is drawn to one ſide in conſequence of hemiplegia. Some degree of tenſion indeed is neceſſary for the performance of the natural motions of the muſcles, whether voluntary or involuntary; and the vigour with which the ſeveral actions are performed depends on the due degree of this tone. This tone of the muſcles is every where maintained by a certain counteracting mechanical power: the great muſcles are kept on the ſtretch by the bones, the heart and veſſels by the maſs of fluids, and the inteſtines by the aliments taken in, and their other contents. Diſeaſes of various kinds may ariſe from the different degrees of this tenſion, and the vaſcular ſyſtem is more apt to be affected by different degrees of tenſion than any other part of the body; and our author conſiders what is called a *nervous* habit as one of the effects of want of tenſion. He likewiſe attributes to the different degrees of tenſion, more than to any thing elſe, the great difference of conſtitutions obſervable among mankind. He obſerves alſo, that the tenſion of the muſcles is greatly affected by ſympathy. "This (ſays he) is particularly obſerved in the blood-veſſels and inteſtines; for a relaxation in theſe will produce a like affection in every other part of the animal ſyſtem. With regard to the inteſtines, it may be mentioned among other proofs, that it is common for perſons in a ſtate of great weakneſs to be affected by ſyncope, and even inſtantaneous death, in the act of evacuating the bowels. It ſeems to be from a like cauſe, that a temporary lowneſs is produced by an abſceſs being opened.

(9.) **MUSCLES, DR BLANE'S THEORY OF THE MECHANICAL POWERS OF THE.** The Doctor concludes his ſubject with conſidering the muſcles as mechanical powers. "As they conſtitute the ſtrength of animals, it may be proper to conſider the relation of their ſtrength to their bulk, and the relation of the bulk and ſtrength of the body to the denſity and cohesion of its own materials; and to the bulk, denſity, and coheſion of the external inanimate bodies with which it is converſant. It has been demonſtrated by Galileo, that in ſimilar unequal bodies, of a cylindrical or priſmatic ſhape, ſuch as the limbs of animals nearly are, the ratio of their efforts to break by their own weight is in the quadruplicate ratio of their lengths; but that the reſiſtance they make to the ſame force is only in the triplicate ratio of their lengths. It follows from this, that in order to endow the limbs of animals with the ſame relative force, it is not only neceſſary that the bones ſhould poſſeſs an increaſed proportion of thickneſs, in order to give an adequate increaſe of what may be called the dead ſtrength; but a ſimilar increaſe of living ſtrength is neceſſary, by a ſuitable addition of muſcular power, in order to keep pace with the increaſed ſize of the bones. Now we obſerve, in fact, that in the large ſized animals, ſuch as the bull and the elephant, the thickneſs both of their bones and muſcles become greater in proportion to the length of their limbs than in the ſmaller animals, and they are therefore of a leſs elegant form. But nature has not carried this ſo far as to compenſate for the diſadvantage ariſing from the increaſe of ſize; for the greater animals have not the ſame proportional ſtrength, in relation to their bulk, that the ſmaller animals have. It has been computed, that a flea can draw from 70 to 80 times its own weight, whereas a horſe cannot with eaſe draw more than three times his own weight. This diſproportion between ſize and ſtrength is very obſervable in different individuals of the human ſpecies; for tall men are not muſcular, even in the ſimple proportion of their ſtature." Conſidering the manner in which the muſcles act upon the bones into which they are inſerted, and conſidering the bones as levers, the muſcles ſeem to act upon them at a very great diſadvantage, being always inſerted much nearer the fulcrum than the weight to be raiſed. Thus the two muſcles of the arm, named *biceps* and *brachiæus internus*, in order to ſupport in the hand a weight of 1 lb. with the fore-arm at right angles to the humerus, muſt exert a power equal to 10 lb. Another circumſtance which tends to waſte the power, is the obliquity with which they are inſerted into their bones; ſo that the greater part of the force is expended in preſſing one bone againſt another at the articulation, and only a ſmall part of it in making the flexures and extenſions. Theſe diſadvantages, however, are compenſated by a number of conveniencies, which could not have been obtained on any other plan. We muſt diſtinguiſh between thoſe actions which conſiſt in preſſure and thoſe which depend on percuſſion; for as the momentum of this laſt depends on velocity, it is evident, that there muſt be a great advantage from the inſertion of the tendon being near the centre of motion, as greater velocity with leſs expenſe of contraction will thus be communicated to the extremity. The muſcles, for inſtance, which are attached to the *olecranon*, in performing thoſe actions with the hand which require rubbing, act with a diſadvantage exactly proportional to the inequality of the diſtance from their inſertion to the joint of the elbow, and that from the ſame joint to the hand. This is an act of preſſure. But in the caſe of percuſſion, as in the action of uſing a hammer, there is an evident advantage reſulting from the velocity communicated to the extremity; for, in order to have produced the ſame velocity, with the inſertion at a greater diſtance from the centre of motion, a much greater degree of contraction would have been neceſſary, and our author ſhows that fatigue principally depends on a contraction of the muſcles. "If any one (ſays he) will take the trouble of comparing the fatigue of the biceps muſcle, in bearing a weight in the hand with the elbow joint bent to a right angle, with that of bearing the ſame weight for the ſame length of time with the joint at an acute angle, he will be ſenſible how much the degree of fatigue depends on the extent of contraction; and, by attending to the relative ſituation of muſcular fibres, it will appear, that Nature, in diſtributing the fibres of muſcles obliquely, has had it in view not only to increaſe their number, but to ſave contraction." In conſidering the actions of the various muſcles in producing the different actions of the body, we find ſcarce one produced that can be called direct. In ſome inſtances we find two muſcles, or two ſets of muſcles, co-operating, ſo that the motion effected by them ſhall be in the diagonal of their direction. This is the caſe of the oblique muſcles of the abdomen in ſome of their actions, and of the intercoſtal muſcles in all theirs. Sometimes different portions of the ſame muſcle combine in like manner to produce a ſimilar effect; and in all the long muſcles, however ſimple their origin and inſertion may be, there is an internal obliquity of their fibres with regard to one another; for theſe do not run from end to end, but there are parts of the tendon running into the belly of the muſcle, ſo as to divide it into penniform and rhomboidal portions. This diſtribution of the fibres takes off from the length; but as it takes place in thoſe caſes where the origin and inſertion are at a conſiderable diſtance, this can be afforded: and this, as well as the waſte of power, in conſequence of oblique action, is more than compenſated by the increaſed ſtrength from the fibres being multiplied; for, in conſequence of this ſtructure, there is an extent of tendon afforded ſufficient for the inſertion of a greater number of fleſhy fibres. The Doctor illuſtrates this principle in the mechaniſm of muſcular action from the example of fiſh; a ſpecies of animals which exert greater muſcular powers than any other. The "muſcles of moſt fiſh (ſays he) conſiſt of regular ſeries of oblique ſhort fibres, forming thoſe ſtrata which every one muſt have obſerved in their muſcular ſubſtance. Their motions are more ſimple and limited than thoſe of land animals, but much more vigorous; for a fiſh in the ſea has to make its way through a medium about 1000 times more denſe than air, and with more rapidity than thoſe which inhabit the land. Nature, therefore, inſtead of giving them muſcles whoſe fibres would run ſtraight from one end of their body to the other, has multiplied their numbers, by diſtributing them into ſhort and oblique portions. I have ſeen the ſword of a ſword-fiſh ſticking in a plank, which it had penetrated from ſide to ſide; and when it is conſidered that the animal was then moving through ſo denſe a medium, and in the ſame direction with the ſhip, we muſt form a high conception of its muſcular power." Laſtly, our author gives a mathematical demonſtration, that by the obliquity of the muſcles a very conſiderable quantity of contraction is ſaved, and conſequently a proportional degree of fatigue prevented.—"Let the line AB (ſays he) in the annexed diagram, repreſent a moveable bone, and the line CD a fixed bone parallel to it. Let FE, perpendicular to theſe lines, repreſent a muſcle acting in its own direction, and the lines GE, HE, repreſent two muſcles acting obliquely, and producing by a diagonal action the ſame effect as the other. If the bone AB be brought to the ſituation *a b* by the action of the muſcle FE, the muſcle will then be in the ſituation FK. If the bone is brought into the ſame ſituation by the action of the muſcles GE, HE, theſe muſcles will then be in the ſituation GK, HK. (*Fig.* 3, *Plate* CCXXIX.) The propoſition to be demonſtrated is, that the line GK bears a greater proportion to the line GE, than the line FK does to line FE; for FK is to FE as GL is to GE (Euc. Elem. B. vi. Prop. 2.); and the angle ELK being leſs than a right angle, the angle GLK, which is adjacent to it, muſt be greater than a right angle; and the angle GKL being in the ſame triangle with GLK, muſt be leſs than a right angle. The line GK, therefore, which ſubtends the greater angle, is greater than the line GL, ſubtending the leſſer, and therefore bears a greater proportion to GE. But the line GL is to GE as FK is to FE; and therefore GK bears a greater proportion to GE than FK does to FE; that is, the fibres of the muſcles acting obliquely, ſuffer a leſs proportional decurtation than thoſe of the muſcle acting directly. It is farther obvious, that the more oblique the action becomes, the greater ſaving there will be of contraction; for in moving the line *a b* towards CD, the line FK diminiſhes in a ſwifter ratio than the line GK; and when the former has vaniſhed, the latter is in the ſituation GF." Beſides theſe advantages in point of diminiſhing fatigue, there are others relating to the ſhape of the members. Thus, if the inſertions of the muſcles had been at a great diſtance from the joints, they muſt upon every occaſion have paſſed like bow-ſtrings from one bone to the other, and the limbs muſt have been exceedingly clumſy and unwieldy; all the motions muſt alſo have been extremely ſlow; and notwithſtanding the ſuperior ſtrength which people would then have enjoyed, it is very plain, that they would ſcarce have been fit for any of the offices of life which they now perform.

(10.) Muſcles, voluntary and involuntary, penniform and rectilinear. See Anatomy, *Index.*

MUSCOGULGE. See Muskogulge.

* MUSCOSITY. *n. ſ.* [*muſcoſus*, Lat.] Moſſineſs.

MUSCOVA. See Moskva.

(1.) MUSCOVY. See Russia.

(2.) Muſcovy Glaſs. See Mica, and Mineralogy, *Part* II. *Chap.* II, *Claſs* I, *Order* I, *Gen.* VII, *Sp.* 6.

(1.) * MUSCULAR. *adj.* [from *muſculus*, Lat.] Relating to muſcles; performed by muſcles.—By the *muſcular* motion and perpetual flux of the liquids, a great part of the liquids are thrown out of the body. *Arbuthnot.*

(2.) Muſcular contraction. See Muscle, § 6—9.

(3.) Muſcular fibres. See Anatomy, *Ind.*

(4.) Muſcular motion. See Anatomy, and Electricity, *Indexes;* and Muscle, § 7. From the late important and ſtriking experiments in Galvaniſm, it appears, 1. That taking the ceſſation of excitability by the Galvanic ſtimulus as the criterion of life, the heart is not the *ultimum* but the *primum moriens;* for while the muſcles of the limbs were excited to ſtrong contractions ſome hours after apparent death, the heart was utterly incapable of being excited to action, either by applying the extremity of the metallic arc to its ſurface, or to its interior. 2. That the lungs were equally inexcitable as the heart. 3. That not only the muſcles, but the ſkin and cellular membrane were excited. 4. The contractions of the muſcles were excited by the Galvanic arc, applied to the nerves ſupplying the muſcles; but theſe nerves were not affected. 5. The raiſing up the arm, was produced, as if by *volition*, by the Galvanic ſtimulus. 6. A milky or coagulated matter was formed by repeated contractions of the muſcles in contact with the copper wire. 7. When the parts ceaſed to give out motion, the motion was renewed, with augmented force, by wetting them with a ſolution of ſal ammoniac.—In attempting to reſtore ſuſpended animation, it is recommended to apply *oxygen gas* to the lungs at the ſame time. See Metallic, § 4; and Suspended Animation.

(5.) Muscular Nerve. See Anatomy, *Ind.*

* MUSCULARITY. *n.ſ.* [from *muſcular.*] The ſtate of having muſcles.—The guts of a ſturgeon, taken out and cut to pieces, will ſtill move, which may depend upon their great thickneſs and *muſcularity*. *Grew's Muſæum.*

MUSCULO-CUTANEUS. See Anatomy, *Ind.*

(1.)* MUSCULOUS. *adj.* [*muſculeux.* Fr. *muſculoſus*, Lat.] 1. Full of muſcles; brawny. 2. Pertaining to a muſcle.—The uvea has a *muſculous* power, and can dilate and contract that round hole, called the pupil of the eye, for the better moderating the tranſmiſſion of light. *More.*

(1.) MUSCULUS, Andrew, a Lutheran divine, who was profeſſor of divinity at Francfort on the Oder, in the 16th century, and wrote ſeveral books on theology. He died in 1580.

(2.) Musculus, Wolfgang, a learned proteſtant divine, born at Dieuze in Lorrain, in 1497. He joined the Benedictines, and was eſteemed a good preacher; but having embraced Luther's doctrines, he was obliged to fly to Straſburg, where he married. After this he ſuffered great hardſhips, and was obliged to work for his bread; but at length was made miniſter deacon of the chief church in Straſburg; whence he removed, in 1527, to Augſburg, where he prevailed on the magiſtrates to aboliſh the popiſh worſhip. When Augſburg was taken by Charles V. he retired to Berne, where he was appointed profeſſor of divinity, and died in 1563. He was a man of deep erudition, and tranſlated ſeveral works of the Greek fathers into Latin. He alſo publiſhed comments on the Scriptures.

(3.) Musculus, a military machine, made uſe of by the Romans to cover and protect the ſoldiers while they approached and undermined the walls of beſieged places, or filled the ditches. It ſeems to have reſembled the teſtudo in form, but was ſmaller in ſize. See Testudo.

(4.) Musculus, in zoology. See Mus, N° 39.

* MUSE. *n.ſ.* [from the verb.] 1. Deep thought; cloſe attention; abſence of mind; brown ſtudy.—

The tidings ſtrange did him abaſhed make,
That ſtill he ſat long time aſtoniſhed
As in great *muſe*. *Fairy Queen.*

He was fill'd
With admiration and deep *muſe*, to hear
Of things ſo high and ſtrange. *Milton.*

2. The power of poetry.—

Begin my *muſe*. *Cowley.*

The *muſe*-inſpired train
Triumph, and raiſe their drooping heads again. *Waller.*

Lodona's fate, in long oblivion caſt,
The *muſe* ſhall ſing. *Pope.*

* *To* Muse. *v. n.* [*muſer*, Fr. *muyſen*, Dutch; *muſſo*, Latin.] 1. To ponder; to think cloſe; to ſtudy in ſilence.—If he ſpake courteouſly, he angled the people's hearts; if he were ſilent, he *muſed* upon ſome dangerous plot. *Sidney.*—St Auguſtine, ſpeaking of devout men, noteth how attentive ear they give unto the chapters read, how careful they were to remember the ſame, and to *muſe* thereupon by themſelves. *Hooker.*—

Cæſar's father oft,
When he hath *muſ'd* of taking kingdoms in,
Beſtow'd his lips on that unworthy place,
As it rain'd kiſſes. *Shak.*

—My mouth ſhall ſpeak of wiſdom; and my heart *muſe* of underſtanding. *Pſalm* xlix. 3.—Her face upon a ſudden glittered, ſo that I was afraid of her, and *muſed* what it might be. 2 Eſdr. x. 25.—All men *muſed* in their hearts of John. *Luke* iii. 15.

On theſe he *muſ'd* within his thoughtful mind. *Dryden.*

—We *muſe* ſo much on the one, that we are apt to overlook and forget the other. *Atterbury.*

Man ſuperior walks
Amid the glad creation, *muſing praiſe*. *Thomſ.*

2. To be abſent of mind; to be attentive to ſomething not preſent; to be in a brown ſtudy.—

Why haſt thou loſt the freſh blood in thy cheeks?
And given my treaſures and my rights of thee,
To thick-ey'd *muſing*? *Shak.*

You ſuddenly aroſe and walk'd about,
Muſing and ſighing with your arms acroſs. *Shak.*

The ſad king
Feels ſudden terror and cold ſhivering,
Likes not to eat, ſtill *muſes*, ſleeps unſound, *Daniel.*

3. To wonder; to be amazed.—

Muſe not that I thus ſuddenly proceed. *Shak.*

Do not *muſe* at me,
I have a ſtrange infirmity. *Shak. Macbeth.*

* MUSEFUL. *adj.* [from *muſe.*] Deep thinking; ſilently thoughtful.—

Full of *muſeful* mopings, which preſage
The loſs of reaſon, and conclude in rage. *Dryd.*

MUSEIA, Grecian feſtivals in honour of the Muses, celebrated with games every 5th year, particularly by the Theſpians. The Macedonians alſo obſerved a feſtival of the ſame name in honour of Jupiter and the Muſes, which laſted 9 days, and was celebrated with ſtage plays, ſongs, and poetical compoſitions.

* MUSER. *n. ſ.* [from *muſe.*] One who muſes; one apt to be abſent of mind.

MUSES, deities among the Pagans, ſuppoſed to preſide over the arts and ſciences. Hence it was uſual for the poets, at the beginning of a poem, to invoke the aid of theſe goddeſſes. The Muſes are ſaid to have been originally only ſingers and muſicians in the ſervice of Osiris, or the great Egyptian Bacchus, under his ſon Orus; but in ſucceeding times they were deified, and called the daughters of Jupiter and Mnemoſyne, or Memory. Theſe are the only pagan divinities whoſe worſhip may be ſaid to have continued through all changes in the religion and ſentiments of mankind. Even Chriſtian poets ſeldom undertake

take the ſlighteſt work without invoking their aid! Milton begins the 7th book of his *Paradiſe Loſt* (from which, on account of the ſacredneſs of the ſubject, all ſuch nonſenſe ſhould have been excluded), with an invocation to Urania.—Diodorus Siculus ſays that Alcman of Meſſene, a lyric poet, who flouriſhed in the 27th Olymp. 670 years B. C. makes them the daughters of Uranus and Terra. It has been aſſerted by ſome ancient writers, that at firſt they were only three in number; and that their names were *Melete* (meditation), *Mneme* (memory), and *Abede* (ſong or muſic); but Homer, Heſiod, and other mythologiſts, admit of 9; and Heſiod, in his Theogony, names them all.—Each of them preſides over ſome art or ſcience, as muſic, poetry, dancing, aſtronomy, &c.—By ſome they are called *virgins*, becauſe the virtues of education appear unalterable: they are called *Muſes*, Μουσαι, from μαω, to *inquire*, or *explain myſteries*, becauſe they taught things the moſt curious and important. Each of their names includes ſome particular allegory: *Clio* has been thus called, becauſe thoſe who are praiſed in verſe acquire immortal fame; *Enterpe*, on account of the pleaſure accruing to thoſe who hear learned poetry; *Thalia* implies for ever flouriſhing; *Melpomene*, that her melody inſinuates itſelf into the inmoſt receſſes of the ſoul; *Terpſichore* marks the pleaſure which thoſe receive who are verſed in the liberal arts; *Erato* indicates, that the learned command the eſteem of all mankind; *Polyhymnia*, that poets become immortal by the number of their hymns; *Urania*, that thoſe whom ſhe inſtructs elevate their contemplations and celebrity to the heavens and the ſtars; and, laſtly, the exquiſite voice of *Calliope* has acquired her that appellation, as the inventreſs and guardian of eloquence and rhetoric. An epigram of Callimachus gives the attributes of the 9 Muſes in as many lines,—

Calliope the deeds of heroes ſings;
Great *Clio* ſweeps to hiſtory the ſtrings;
Euterpe teaches mimics their ſilent ſhow;
Melpomene preſides o'er ſcenes of wo;
Terpſichore the flute's ſoft pow'r diſplays;
And *Erato* gives hymns the gods to praiſe;
Polymnia's ſkill inſpires melodious ſtrains;
Urania wiſe, the ſtarry courſe explains;
And gay *Thalia*'s glaſs points out where folly reigns.

* MUSET. *n. ſ.* [in hunting.] The place through which the hare goes to relief. *Bailey.*

MUSETTE. See Music, *Part* II, *Chap.* XVI.

(1.) MUSEUM. *n. ſ.* [μουσειον.] A repoſitory of learned curioſities.

(2.) Museum originally ſignified a part of the palace of Alexandria, which took up at leaſt one 4th of the city. This quarter was ſo called on account of its being ſet apart for the Muſes and the ſtudy of the ſciences. Here were lodged and entertained the men of learning; who were divided into companies or colleges, according to the ſciences of which they were the profeſſors; and to each of theſe houſes or colleges was allotted a handſome revenue. The foundation of this eſtabliſhment is attributed to Ptolemy Philadelphus, who here placed his library. Hence *muſeum* is now applied to any place ſet apart as a repoſitory for things that have an immediate relation to the ſciences.

(3.) Museum, Ashmolean, a noble pile of building, at Oxford, erected at the expenſe of the univerſity, at the W. end of the theatre, at which ſide it has a magnificent portal, ſuſtained by pillars of the Corinthian order. The front, which is to the ſtreet, extends about 60 feet, where there is this inſcription over the entrance in gilt characters, *Muſeum Aſhmoleanum, ſchola naturalis hiſtoriæ, officina chymicha.* It was begun in 1679, and finiſhed in 1683, when a valuable collection of curioſities was preſented to the univerſity by Elias Aſhmole, Eſq. which were the ſame day repoſited there; ſeveral acceſſions have been ſince made to it; among which are hieroglyphics and other Egyptian antiquities, an entire mummy, Roman antiquities, altars, medals, lamps, &c. and a variety of natural curioſities.

(4.) Museum, British, a large, beautiful, and magnificent building, in London, the nobleſt cabinet of curioſities in the world. See Westminster.

(5.) Museum of Natural History. See Natural History, *Appendix*, *Sect.* II.

(1.) MUSGRAVE, Dr William, a learned phyſician and antiquary, born at Charlton-Muſgrave, in Somerſetſhire, about 1657. He ſtudied at New-college, Oxford. Having diſtinguiſhed himſelf by his ſkill in medicine and natural philoſophy, he was elected F. R. S. and being made ſecretary in 1684, he continued the *Philoſ. Tranſ.* from N° 167 to N° 178 incluſive. He took his degree of M. D. in 1689; and being admitted a fellow of the college of phyſicians, he ſettled at Exeter, where he practiſed phyſic with great ſucceſs. Being a man of extenſive learning, he wrote ſeveral valuable works; as, 1. *De arthritide anomala ſive interna diſſertatio.* 2. *De arthritide ſymptomatica diſſertatio.* 3. *Julii Vitalis epitaphium, cum commentario.* 4. *De legionibus epiſtola.* 5. *De aquilis Romanis epiſtola.* 6. *Inſcriptio Terraconenſis, cum commentario.* 7. *Geta Britannicus*, &c. 8. *Belgium Britannicum.* He died in 1721.

(2.) Musgrave, Great, } a town and village
(3.) Musgrave, Little, } of Weſtmoreland, NW. of Kirkby-Steven.

(1.) * MUSHROOM. *n. ſ.* [*muſcheron*, French.] 1. *Muſhrooms* are by curious naturaliſts eſteemed perfect plants, though their flowers and ſeeds have not as yet been diſcovered; the true champignon or *muſhroom* appears at firſt of a roundiſh form like a button, the upper part of which, as also the ſtalk, is very white, but being opened, the under part is of a livid fleſh colour, but the fleſhy part, when broken, is very white; when they are ſuffered to remain undiſturbed, they will grow to a large ſize, and explicate themſelves almoſt to a flatneſs, and the red part underneath will change to a dark colour. In order to cultivate them, open the ground about the roots of the *muſhroom*, where you will find the earth very often full of ſmall white knobs, which are the offsets or young *muſhrooms*; theſe ſhould be carefully gathered, preſerving them in lumps with the earth about them, and planted in hot-beds. *Miller.* 2. An upſtart; a wretch riſen from a dunghill; a direc of a company.—Muſhrooms come up in a night, and yet they are unſown; and therefore ſuch as are upſtarts in ſtate, they call in reproach *muſhrooms. Bacon's Nat Hiſtory.*—

Tully, the humble *muſhroom* ſcarcely known,
The lowly native of a country town. *Dryd.*

(2.) **Mushroom**, in botany. See Agaricus, Boletus, and Lyncurius. To try the quality of muſhrooms:—Take an onion, ſtripe the outer ſkin, and boil it with your muſhrooms; if the onion become blue or black, there are certainly dangerous ones among them; if it remain white, they are good. See Botany, § 277, 337; and Fungi.

(3.) **Mushroom, Cup.** See Peziza.

(1.) * **MUSHROOMSTONE.** *n. ſ.* [*muſhroom* and *ſtone.*] A kind of foſſil.—Fifteen *muſhroomſtones* of the ſame ſhape. *Woodward.*

(2.) **Mushroomstone.** See Lyncurius.

MUSIC.

Definitions *and* Divisions *of the* Science.

(1.) MUSIC is the art of combining ſounds in a manner agreeable to the ear. This combination may be either ſimultaneous or ſucceſſive; in the firſt caſe it conſtitutes **harmony**, in the laſt, **melody**. But though the ſame ſounds, or intervals of ſound, which give pleaſure when heard in ſucceſſion, will not always produce the ſame effect in harmony; yet the principles which conſtitute the ſimpler and more perfect kinds of harmony are moſtly, if not entirely, the ſame with thoſe of melody. By *perfect harmony* we do not here mean that plenitude, thoſe complex modifications of harmonic ſound, which are admired in practice; but that harmony which is called *perfect* by theoricians and artiſts; that harmony which reſults from the coaleſcence of ſimultaneous ſounds produced by vibrations in the proportions of thirds, fifths, and octaves, or their duplicates.

(2.) The principles upon which theſe various combinations of ſound are founded, and by which they are regulated, conſtitute a ſcience, which is not only extenſive but profound, when we would inveſtigate the principles from which theſe happy modifications of ſound reſult, and by which they are determined; or when we would explore the ſenſations, whether mental or corporeal, with which they affect us. The ancient definitions of muſic are not proportioned in their extent to our preſent ideas of that art; but M. Rousseau betrays a temerity inconſiſtent with the philoſophical character, when he thence infers, that their ideas were vague and undetermined. With theſe definitions, however, we are leſs concerned, as they bear no proportion to the ideas which are now entertained of muſic. Nor can we adopt M. Rouſſeau's Egyptian etymology of the word *muſic*. The eſtabliſhed derivation from Musa could only be queſtioned by a paradoxical genius. That muſic had been practiſed in Egypt before it was known as an art in Greece, is indeed a fact which cannot be queſtioned; but it does not thence follow that the Greeks had borrowed the *name* as well as the *art* from Egypt. If the art of muſic be ſo natural to man that vocal melody is practiſed wherever articulate ſounds are uſed, there can be no reaſon for deducing the idea of muſic from the whiſtling of winds through the reeds that grew on the Nile. And indeed, when we reflect with how eaſy a tranſition we may paſs from the accents of ſpeaking to diatonic ſounds; when we obſerve how early children adapt the language of their amuſements to meaſure and melody, however rude; when we obſerve that they even apply a kind of natural melody to the leſſons they are taught to read; when we conſider how early and univerſally theſe practices take place, there is no avoiding the concluſion, that the idea of muſic is connatural to man, and implied in the original principles of his conſtitution. The principles on which it is founded, and the rules by which it is conducted, conſtitute a ſcience. The ſame maxims when applied to practice form an art; hence its firſt and moſt capital diviſion is into *ſpeculative* and *practical* muſic.

(3.) **Speculative music** is the knowledge of the nature and uſe of thoſe materials which compoſe it; or of all the different relations between the high and low, between the harſh and the ſweet, between the ſwift and the ſlow, between the ſtrong and the weak, of which ſounds are ſuſceptible; relations which, comprehending all the poſſible combinations of muſic and ſounds, ſeem likewiſe to comprehend all the cauſes of the impreſſions which their ſucceſſion can make upon the ear and upon the ſoul.

(4.) **Practical music** is the art of applying and reducing to practice thoſe principles which reſult from the theory of agreeable ſounds, whether ſimultaneous or ſucceſſive; or of conducting and arranging ſounds according to the proportions reſulting from conſonance, duration, and ſucceſſion, ſo as to produce upon the ear the effect which the compoſer intends. This is the art which we call *compoſition*. (See Composition, § 6, 7.) With reſpect to the actual production of ſounds by voices or inſtruments, which is called *execution*, this department is merely mechanical and operative. (See Execution, § 5.) Which, only preſuppoſing the powers of ſounding the intervals true, demands no other knowledge but a familiar acquaintance with the characters uſed in muſic, and a habit of expreſſing them with promptitude and facility.

(5.) **Speculative music** is likewiſe divided into two departments; viz. the knowledge of the proportions of ſounds or their intervals, and that of their relative durations; that is to ſay, of *meaſure* and of *time*. The firſt is what among the ancients ſeems to have been called **harmonical** muſic. It ſhows in what the nature of air or melody conſiſts; and diſcovers what is conſonant or diſcordant, agreeable or diſagreeable, in the modulation. It diſcovers the effects which ſounds produce on the ear by their nature, their force, and their intervals; which is equally applicable to their conſonance and ſucceſſion. The 2d has been called RHYTHMICAL, becauſe it treats of ſounds with regard to their time and quantity. It contains the explication of their continuance, of their proportions, of their meaſures, whether long or ſhort, quick or ſlow, of the different modes of time, and the parts into which they are divided, that to theſe the ſucceſſion of ſounds may be conformed.

(6.) PRACTICAL muſic is likewiſe divided into two departments, which correſpond to the two preceding. That which anſwers to *harmonical* muſic, and which the ancients called *melopée*, teaches the rules for combining and varying the intervals, whether conſonant or diſſonant, in an agreeable and harmonious manner. The 2d, which anſwers to the RHYTHMICAL muſic, and which they called RHYTHMOPEE, contains the rules for applying the different modes of time, for underſtanding the feet by which verſes were ſcanned, and the diverſities of meaſure; in a word, for the practice of the rythmus.

(7.) Muſic is at preſent divided more ſimply into MELODY and HARMONY; for, ſince the introduction of *harmony*, the proportion between the length and ſhortneſs of ſounds, or even that between the diſtance of returning cadences, are of leſs conſequence. For it often happens in modern languages, that the verſes aſſume their meaſures from the muſical air, and almoſt entirely loſe the ſmall ſhare of proportion and quantity which in themſelves they poſſeſs. By melody the ſucceſſions of ſound are regulated in ſuch a manner as to produce pleaſing airs. Harmony conſiſts in uniting to each of the ſounds, in a regular ſucceſſion, two or more different ſounds, which ſimultaneouſly ſtriking the ear, ſoothe it by their concurrence. See HARMONY, § 3.

(8.) Muſic, ſays Rouſſeau, may be divided into the *phyſical* and the *imitative*. The firſt is limited to the mere mechaniſm of ſounds, and reaches no farther than the external ſenſes, without carrying its impreſſions to the heart, and can produce nothing but corporeal ſenſations more or leſs agreeable. Such is the muſic of ſongs, of hymns, of all the airs which only conſiſt in combinations of melodious ſounds, and in general all muſic which is merely harmonious.

(9.) The 2d department of this diviſion, by lively and accentuated inflections, and by ſounds which may be ſaid to ſpeak, expreſſes all the paſſions, paints every poſſible picture, reflects every object, ſubjects the whole of nature to its ſkilful *imitations*, and impreſſes even on the heart and ſoul of man ſentiments proper to affect them in the moſt ſenſible manner. This, continues he, which is the genuine lyric and theatrical muſic, was what gave double charms and energy to ancient poetry; this is what, in our days, we exert ourſelves in applying to the drama, and what our ſingers execute on the ſtage. It is in this muſic alone, and not in harmonics or the reſonance of nature, that we muſt expect to find accounts of thoſe prodigious effects which it formerly produced.

(10.) But, in fact, all muſic which is not in ſome degree characteriſed by theſe pathetic and *imitative* powers, deſerves no better name than that of a *muſical jargon*, and can only be effectuated by ſuch a complication and intricacy of harmony, as may confound, but cannot entertain the audience. This character, therefore, ought to be added as eſſential to the definition of muſic.

(11.) Whilſt moral effects are ſought in the natural effects of ſound alone, the ſcrutiny will be vain, and diſputes will be maintained without being underſtood; but ſounds, as repreſentatives of objects, whether by nature or aſſociation, introduce new ſcenes to the fancy, and new feelings to the heart; not from their mechanical powers, but from the connection eſtabliſhed by the Author of our frame between ſounds and the objects which, either by natural reſemblance, or unavoidable aſſociation, they are made to repreſent.

INTRODUCTION.

(12.) It would ſeem that muſic was one of thoſe arts which were firſt diſcovered; and that vocal was prior to inſtrumental muſic; for it is probable, that muſic was originally formed to be the vehicle of poetry.

(13.) We are told by ancient authors, that all the laws, maxims, and exhortations to virtue, the characters and actions of gods and heroes, the lives and achievements of illuſtrious men, were written in verſe, and *ſung* publicly by a quire to the ſound of inſtruments; and it appears from the Scriptures, that ſuch was often the cuſtom among the Iſraelites.

(14.) The ENGLISH, from the invaſion of the Saxons to that lucid era in which they imbibed the art and copied the manner of the Italians, had a muſic which neither pleaſed the ſoul nor charmed the ear. The primitive muſic of the French deſerves no higher panygeric. Of all the barbarous nations, the Scots and Iriſh ſeem to have poſſeſſed the moſt affecting original muſic. The firſt conſiſts of a melody characteriſed by tenderneſs; it melts the ſoul to a pleaſing penſive languor. The other is the native expreſſion of grief and melancholy. Taſſoni informs us, that in his time a prince from Scotland had imported into Italy a lamentable kind of muſic from his own country; and that he himſelf had compoſed pieces in the ſame ſpirit. From this expreſſive, though laconic deſcription, we learn that the character of our national muſic was even then eſtabliſhed; yet ſo groſs is our *ignorance* and *credulity*, that we aſcribe the beſt and moſt impaſſioned airs extant among us to David Rizzio; as if an Italian lutaniſt, who had lived ſo ſhort a time in Scotland, could at once, as if by inſpiration, have imbibed a ſpirit and compoſed in a manner ſo different from his own. It is yet more ſurpriſing, that Geminiani ſhould have entertained and publiſhed the ſame prejudice, upon the miſerable authority of tradition alone.

(15.) The primitive muſic of the SCOTS may be divided into the *martial*, the *paſtoral*, and the *feſtive*. The *firſt* conſiſts either in marches, which were played before the chieftains, in imitation of the battles which they fought, or in lamentations for the cataſtrophes of war and the extinction of families. Theſe wild effuſions of natural melody preſerve ſeveral of the rules preſcribed for compoſition. The ſtrains, though rude and untutored, are frequently terrible or mournful in a very high degree. The port or march is ſometimes in common, ſometimes in treble time; regular in its meaſures, and exact in the diſtance between its returning cadences; moſt frequently, though not always, loud and briſk. The PIBROCH, or imitation of battles, is wild and abrupt in its tranſitions, from interval to interval, and from key to key; various and deſultory in its movements; frequently irregular in the return of its cadences; and in ſhort, through the whole, ſeems inſpired with ſuch fury and enthuſiaſm, that the hearer is irreſiſtibly infected with all the rage of precipitate courage, notwithſtanding the rudeneſs of the accents by which it is kindled. To this the *paſtoral* forms a ſtriking contraſt. Its accents are plaintive, yet ſoothing; its harmony generally flat; its modulations natural and agreeable; its rhythmus ſimple and regular; its returning cadences at equal diſtance; its tranſitions from one concinnous interval to another, at leaſt for the moſt part; its movements ſlow, and may be either in common or treble time. It ſcarcely admits of any other harmony than that of a ſimple baſs. A greater number of parts would cover the air and deſtroy the melody. Dr FRANKLIN, writing to Lord K. on this ſubject, ſays,

(16.) "Give me leave, on this occaſion, to extend a little the ſenſe of your poſition, 'That melody and harmony are, ſeparately agreeable, and in union delightful;' and to give it as my opinion, that the reaſon why the Scotch tunes have lived ſo long, and will probably live for ever (if they eſcape being ſtifled in modern affected ornament), is merely this, that they are really compoſitions of melody and harmony united, or rather that their melody is harmony; I mean, the ſimple tunes ſung by a ſingle voice. As this will appear paradoxical, I muſt explain my meaning. In common acceptation, indeed, only an agreeable *ſucceſſion* of ſounds is called MELODY; and only the *coexiſtence* of agreeable ſounds, HARMONY. But ſince the memory is capable of retaining for ſome moments a perfect idea of the pitch of a paſt ſound, ſo as to compare it with the pitch of a ſucceeding ſound, and judge truly of their agreement or diſagreement, there may and does ariſe from thence a ſenſe of harmony between the preſent and paſt ſounds, equally pleaſing with that between two preſent ſounds. Now, the conſtruction of the old Scotch tunes is this, that almoſt every ſucceeding emphatical note is a third, a fifth, an octave, or ſome note that is in concord with the preceding note. Thirds are chiefly uſed, which are very pleaſing concords.

(17.) "That we have a moſt perfect idea of a ſound juſt paſt, I might appeal to all acquainted with muſic, who know how eaſy it is to repeat a ſound in the ſame pitch with one juſt heard. In tuning an inſtrument, a good ear can as eaſily determine that two ſtrings are in uniſon by ſounding them ſeparately, as by ſounding them together; their diſagreement is alſo as eaſily, I believe I may ſay, more eaſily and better diſtinguiſhed when ſounded ſeparately; for when ſounded together, though you know by the beating that one is higher than the other, you cannot tell which it is. I have aſcribed to memory the ability of comparing the pitch of a preſent tone with that of one paſt.

(18.) "Farther, when we conſider by whom theſe ancient tunes were compoſed, and how they were firſt performed, we ſhall ſee that ſuch harmonical ſucceſſions of ſounds was natural and even neceſſary in their conſtruction. They were compoſed by the minſtrels of thoſe days, to be played on the harp, accompanied by the voice. The harp was ſtrung with wire, which gives a ſound of long continuance; and had no contrivance like that of the modern harpſichord, by which the ſound of the preceding note can be ſtopt the moment a ſucceeding note begins. To avoid actual diſcord, it was therefore neceſſary that the ſucceeding emphatic note ſhould be a chord with the preceding, as their ſounds muſt exiſt at the ſame time. Hence aroſe that beauty in thoſe tunes that have ſo long pleaſed, and will pleaſe for ever, though men ſcarce know why."

(19.) Theſe obſervations are for the moſt part true as well as ingenious. But the tranſition in Scots muſic, by conſonant intervals, does not ſeem, as Dr FRANKLIN imagines, to ariſe from the nature of the inſtruments upon which they played. It is more than probable, that the ancient Britiſh harp was not ſtrung with wire, but with the ſame materials as the Welſh harps at preſent. Theſe ſtrings have not the ſame permanency of tone as metal; ſo that the ſound of a preceding emphatic note muſt have expired before the ſubſequent accented note could be introduced. Beſides, thoſe who are acquainted with the manœuvre of the Iriſh harp, know well that there is a method of diſcontinuing ſounds no leſs eaſy and effectual than upon the harpſichord. When the performer finds it proper to interrupt a note, he has no more to do but return his finger gently upon the ſtring immediately ſtruck, which effectually ſtops its vibration.

(20.) That ſpecies of Scots muſic which we have ſtyled *feſtive*, ſeems now limited to reels and country dances. Theſe may be either in common or treble time. They moſt frequently conſiſt of two ſtrains; each of theſe contain 8 or 12 bars. They are truly rhythmical; but the mirth which they excite ſeems rather to be inſpired by the vivacity of the movement, than either by the force or variety of the melody. They have a manœuvre and expreſſion peculiar to themſelves.

History of Music.

(21.) THE ancient hiſtory of muſic, even among the moſt cultivated nations, is now entirely loſt, or ſo unhappily obſcured, that we can make but few certain or ſatisfactory diſcoveries in it. And as no annals could be tranſmitted to poſterity of that muſic which prevailed among ſuch people as are called *barbarous*, our accounts of it muſt be ſtill leſs authentic and ſatisfactory than thoſe of the former. Even at periods which are more recent, and may therefore be thought more within the ſphere of our inveſtigation, we are at a loſs both for the eras and the authors of ſome eſſential improvements in muſic. Yet thoſe parts of its hiſtory, which are either already known, or may be diſcovered, if related at full length with proper illuſtrations, would produce a work little inferior in ſize to the whole extent of that *Encyclopædia*, of which it only conſtitutes a part. All, therefore, which can be expected, is to give a ſhort and curſory detail of its primary ſtate, and its moſt important revolutions, ſo far as hiſtory enables us.

(22.) Kircher and many others inform us, that muſic prevailed in Egypt before it was known in Greece. Theſe authors derive its name from a word which is primitive in the Egyptian language, and attribute the invention of the art to the ſtridulous murmur of the winds whiſtling through reeds, or other vegetable tubes, which grew upon the banks of the river Nile. But if this legendary account of the diſcovery merits any attention, it muſt relate to inſtrumental muſic alone; for it cannot be imagined that mankind, if in the leaſt attentive to the natural modulation of their own voices, would have recourſe for their ideas of melody to objects ſo extrinſic and ſo contingent as the whiſtling of winds through reeds.

(23.) Man is certainly as much a *muſical* as he is a *vocal* animal; nor is the act of ſinging leſs inſtinctive in him than in birds, though his powers are more extenſive and more ſuſceptible of culture. Mr Pennant and others, who have been attentive to the muſic of the groves, tell us, that though the feathered warblers have a muſical inſtinct, yet the modes of its exertions are as really *acquired* by birds from their parents or tutors as by men.

(24.) "The origin of inſtrumental muſic (ſays a writer in the *Engliſh Encyclopædia*), appears to have been at a period much prior to the date of *authentic* hiſtory; and when we look for its epoch or its diſcoverer, we are carried at once into the wild regions of fable and mythology. The god Mercury, or Hermes, is ſaid to have been the inventor of the lyre, by diſtending ſtrings of different tenſions and diameters upon the ſhell of a tortoiſe which he found upon the ſhore. (See Lyre, § 3.) The firſt exhibition of the fiſtula, or ſhepherd's pipe, is aſcribed to Pan. But of theſe perſons and their actions little or nothing can be aſcertained with proper evidence."

(25.) In fact, we do not need to ranſack mythology or fabulous hiſtory for the origin of this ſcience. We have the moſt authentic accounts of the origin of inſtrumental muſic, that the moſt ſcrupulous antiquarian can deſire. Moses expreſsly records, that muſical inſtruments were made before the flood; and that Jubal, the 7th in deſcent from Adam, by his eldeſt ſon Cain, "was the *father*, or inſtructor, of all ſuch as handle the harp and organ." (Gen. iv. 21.) The ingenious William Maxwell Morison, Eſq. is therefore evidently miſtaken, when he affirms, in his *Hiſtory of* Music prefixed to that article in the *Encyclopædia Britannica*, that, becauſe "No nation has been able to produce proofs of antiquity ſo indiſputable as the Egyptians, *it would be vain to attempt tracing muſic higher* than the hiſtory of Egypt."

(26.) We may ſafely, however, put confidence in what follows, of that ingenious gentleman's hiſtory of this art—"By comparing the accounts (he adds) of Diodorus Siculus and of Plato, there is reaſon to ſuppoſe, that in very ancient times the ſtudy of muſic in Egypt was confined to the prieſthood, who uſed it only on religious and ſolemn occaſions; that, as well as ſculpture, it was circumſcribed by law; that it was eſteemed ſacred, and forbidden to be employed on light or common occaſions; and that innovation in it was prohibited; but what the ſtyle or relative excellence of this very ancient muſic was, there are no traces by which we can form an accurate judgment. After the reigns of the Pharaohs, the Egyptians fell by turns under the dominion of the Ethiopians, the Perſians, the Greeks, and the Romans. By ſuch revolutions, the manners and amuſements of the people, as well as their form of government, muſt have been changed. In the age of the Ptolemies, the muſical games and conteſts inſtituted by thoſe monarchs were of Greek origin, and the muſicians who performed were chiefly Greeks.

(27.) "The moſt ancient monuments of human art and induſtry, at preſent extant at Rome, are the obeliſks brought thither from Egypt, two of which are ſaid to have been erected by Seſoſtris at Heliopolis, about 400 years before the ſiege of Troy. Theſe were by order of Auguſtus brought to Rome after the conqueſt of Egypt. One of them called *guglia rotta*, or the broken pillar, which, during the ſacking of the city in 1527, was thrown down and broken, ſtill lies in the Campus Martius. On it is ſeen the figure of a muſical inſtrument of two ſtrings, and with a neck. It reſembles much the *calaſcione* ſtill uſed in the kingdom of Naples.

(28.) "This curious relict of antiquity is mentioned, becauſe it affords better evidence than, on the ſubject of ancient muſic, is uſually to be met with, that the Egyptians, at ſo very early a period of their hiſtory, had advanced to a conſiderable degree of excellence in the cultivation of the arts. By means of its neck, this inſtrument was capable, with only two ſtrings, of producing a great number of notes. Theſe two ſtrings, if tuned fourths to each other, would furniſh that ſeries of ſounds called by the ancients *heptachord*, which conſiſts of a conjunct tetrachord as B, C, D, E : E, F, G, A; if tuned fifths, they would produce an octave, or two disjunct tetrachords. The calaſcione is tuned in this laſt manner. The annals of no nation other than Egypt, for many ages after the period of the obeliſk at Heliopolis, exhibit the veſtige of any contrivance to ſhorten ſtrings during the performance by a neck or finger-board. Father Montfaucon obſerves, that after examining 500 ancient lyres, harps, and citharas, he could diſcover no ſuch thing."

(29.) "The Hermes of the Egyptians (continues Mr Moriſon), ſirnamed Trismegistus, or *thrice illuſtrious*, who was, according to Sir Iſaac Newton, the ſecretary of Oſiris, is celebrated as the inventor of muſic.—No one perſon ought ſtrictly to be called the inventor of an art which ſeems to be natural to, and coeval with, the human ſpecies; but the Egyptian Mercury is without doubt entitled to the praiſe of having made ſtriking improvements in muſic, as well as of having advanced in various reſpects the civilization of the people, whoſe government was chiefly committed to his charge."

(30.) "The Monaulos, or ſingle flute, called by the Egyptians PHOTINX, was probably one of the moſt ancient inſtruments uſed either by them or any other nation. From various remains of ancient ſculpture, it appears to have been ſhaped like a bull's horn, and was at firſt, it may be ſuppoſed, no other than the horn itſelf.—Before the invention of flutes, as no other inſtrument except thoſe of percuſſion were known, muſic muſt have been little more than metrical. When the art of refining and lengthening ſounds was diſcovered, the power of muſic over mankind, from the agreeable ſurpriſe occaſioned by ſoft and extended notes, was probably irreſiſtible. At a time when all the reſt of the world was involved in ſavage ignorance, the Egyptians were poſſeſſed of muſical inſtruments capable of much variety and expreſſion.—Of this the aſtoniſhing remains of the city of Thebes ſtill ſubſiſting afford ample evidence. In a letter from Mr Bruce, ingroſſed in Dr Burney's *Hiſtory of Muſic*, there is a particular deſcription of the Theban harp, an inſtrument of extenſive compaſs, accompanied with a drawing taken from the ruins of an ancient ſepulchre at Thebes, ſuppoſed by Mr Bruce to be that of the father of Seſoſtris.

(31.) "On the ſubject of this harp, Mr Bruce makes the following ſtriking obſervation. "It overturns all the accounts of the earlieſt ſtate of ancient muſic and inſtruments in Egypt, and is altogether, in its form, ornaments, and compaſs, an inconteſtible proof, ſtronger than a thouſand Greek quotations, that geometry, drawing, mechanics, and muſic, were at the greateſt perfection when this harp was made."

(32.) "It cannot be doubted, that during the reigns of the Ptolemies, muſic muſt have been much cultivated. The father of Cleopatra, the laſt of that race, derived his title of AULETES, or *fluteplayer*, from his exceſſive attachment to the flute. Like Nero, he uſed to array himſelf in the dreſs of a *tibicen*, and exhibit his performance in the public muſical conteſts.

(33.) "The ſacred Scriptures afford almoſt the only materials from which any knowledge of Hebrew muſic can be drawn. Moses, who led the Iſraelites out of Egypt, was educated by Pharaoh's daughter, in all the literature and elegant arts of that country. The taſte and ſtyle of Egyptian muſic would therefore be infuſed into that of the Hebrews. Muſic appears to have been interwoven through the whole tiſſue of religious ceremony in Paleſtine. The prieſthood ſeem to have been muſicians hereditarily and by office. The prophets accompanied their inſpired effuſions with muſic; and every prophet ſeems to have been accompanied by a muſical inſtrument.

(34.) "Muſic, vocal and inſtrumental, conſtituted a great part of the funeral ceremonies of the Jews. The number of flute-players in the proceſſions amounted ſometimes to ſeveral hundreds, and the attendance of the gueſts continued frequently for 30 days. (*Joſephus*, l. 3, c. 9.)

(35.) "The Hebrew language abounds with conſonants, and has ſo few vowels, that in the original alphabet they had no characters. Their inſtruments of muſic were chiefly thoſe of percuſſion; ſo that, both on account of the language and the inſtruments, the muſic muſt have been coarſe and noiſy. The vaſt numbers of performers, too, whom they collected together, could, with ſuch language and ſuch inſtruments, produce nothing but clamour and jargon. Joſephus ſays, there were 200,000 muſicians at the dedication of Solomon's temple.

(36.) "Cadmus, with the Phœnician colony which he led into Greece, imported at the ſame time various arts into that country. That chief diſcovered gold in Thrace and copper at Thebes, where it is ſtill termed CADMIA. Of theſe materials, and of iron, they formed inſtruments of war. Theſe they ſtruck againſt each other during their dances at ſacrifices, by which they firſt obtained the idea of inſtrumental muſic. Such is the origin of that ſpecies of muſic in Greece, produced by inſtruments of percuſſion. The invention of wind inſtruments is attributed to Minerva; and to the Grecian Mercury is aſſigned the honour of many diſcoveries probably due to the Egyptian Hermes, particularly the invention of ſtringed inſtruments." (See Lyre, § 3.)

(37.) "The Grecian lyre, though invented by Mercury, was cultivated principally by Apollo, who firſt played upon it with method, and accompanied it with the voice. The celebrated conteſt between him and Marsyas is mentioned by various authors; in which, by conjoining the voice with his lyre, his muſic was declared ſuperior to the flute of Marſyas. Diodorus Siculus ſays, "The Muſes added to the Grecian lyre the ſtring called *meſe*; Linus that of lichanos; and Orpheus and Thamyras thoſe ſtrings which are named *hypate* and *parhypate*." The lyre invented by the Egyptian Mercury had but three ſtrings. *Meſe*, in the Greek muſic, is the 4th ſound of the 2d tetrachord of the great ſyſtem, and firſt tetrachord invented by the ancients, anſwering to our A, on the fifth line in the baſe. If this ſound then was added to the former three, it proves that the moſt ancient tetrachord was that from E in the baſe to A; and that the three original ſtrings in the Mercurian and Apollonian lyre were tuned E, F, G, which the Greeks call *hypate meſon*, *parhypate meſon*, and *meſon diatonos*; the addition, therefore, of *meſe* to theſe completed the firſt and moſt ancient tetrachord E, F, G, A. The ſtring *lichanos* again being added to theſe, and anſwering to our D on the third line in the baſe, extended the compaſs downwards, and gave the ancient lyre a regular ſeries of five ſounds. The two ſtrings *hypate* and *parhypate*, correſponding with our B and C in the baſe, completed the heptachord or ſeven ſounds, b, c, d, e, f, g, a; a compaſs which received no addition till after the days of Pindar.

(38.) "It has been imagined, that the occupation of the firſt poets and muſicians of Greece reſembled that of the Celtic and German Bards, and the Scalds of Iceland and Scandinavia. They ſung their poems in the ſtreets of cities and palaces of princes. They were treated with high reſpect, and regarded as inſpired. Such was the employment of Homer. His poems exhibit the moſt authentic picture of the times of which he wrote, and in which he lived. Muſic is always named throughout the Iliad and Odyſſey with rapture. The inſtruments moſt frequently named are the lyre, the flute, and the ſyrinx. The trumpet appears not to have been known at the ſiege of Troy. From the time of Homer till that of Sappho, only a few fragments remain of the works of thoſe poets and muſicians, who flouriſhed between thoſe periods. During the century which elapſed between Sappho and Anacreon, no literary productions are preſerved entire. From Anacreon to Pindar there is another chaſm of near a century. Subſequent to this time, the works ſtill extant of Æſchylus, Sophocles, Euripides, Plato, Ariſtotle, Ariſtoxenus, Euclid, Theocritus, Callimachus, Polybius, &c. produced all within leſs than 300 years, diſtinguiſh this illuſtrious period, as that in which the whole powers of genius ſeem to have been exerted to illuminate mankind. Then eloquence, poetry, *muſic*, architecture, hiſtory, painting, ſculpture, like the ſpontaneous bloſſoms of nature, flouriſhed without the appearance of labour or of art. The poets, epic, lyric, and elegiac, were all likewiſe muſicians, ſo ſtrictly connected were muſic and poetry for many ages.

(39.) "The invention of *notation* and *muſical characters* marked a diſtinguiſhed æra in the progreſs of muſic. Terpander is the celebrated poet and muſician, to whoſe genius muſic is indebted for this. He flouriſhed about the 27th Olympiad, or A. A. C. 671. Before that valuable diſcovery, muſic being entirely traditional, muſt have depended much on the memory and taſte of the performer.

(40.) "There is an incident mentioned in the accounts of the Olympic games, which may ſerve to mark the character of muſic at the time it happened. Lucian relates that a young flute player named Harmonides, at his firſt public appearance in theſe games, began a ſolo with ſo violent a blaſt, on purpoſe to *ſurpriſe* and *elevate* the audience, that he *breathed his laſt breath into his flute*, and died on the ſpot. When to this anecdote (to us almoſt incredible) it is added, that the trumpet-players at theſe exhibitions expreſſed an exceſs of joy, when they found their exertions had neither rent their cheeks nor burſt their blood-veſſels, ſome idea may be formed of the noiſy and vociferous ſtyle of muſic which then pleaſed.

(41.) "In whatever *manner* the flute was played on, there is no doubt that it was long in Greece an inſtrument of high favour, and that the flute-players were held in much eſtimation. The flute uſed by Ismenias, a celebrated Theban muſician, coſt at Corinth three talents, or L. 581, 5s. The ancients were not leſs extravagant in gratifying the miniſters of their pleaſures than ourſelves. Amoebæus, a harper, was paid an Attic talent, or L. 193, 15s. per day for his performances. Roscius had 500 *ſeſtertia*, or L. 4036, 9s. 2d. St. a-year. The beautiful Lamia, who was taken captive by Demetrius, when he vanquiſhed Ptolemy Soter, and who captivated her conqueror, with many other female muſicians, are recorded by ancient authors in terms of admiration. The philoſophers of Greece were not inattentive to the theory of muſic. This ſcience became the ſource of various ſects, and of much diverſity of opinion. The founders of the moſt diſtinguiſhed ſects were Pythagoras and Aristoxenus.

(42.) "The Romans, from their firſt origin, were poſſeſſed of a peculiar ſpecies of muſic. It was rude and coarſe; but as ſoon as they opened a communication with the Greeks, they borrowed their muſic and muſical inſtruments. The exceſſive vanity of Nero, with reſpect to muſic, diſplayed in his public contentions with the moſt celebrated profeſſors of the art in Greece and Rome, is well known. (See Nero.) The ſolicitude with which that deteſtable tyrant attended to his voice, throws ſome light on the practices of ſingers in ancient times. He lay on his back, with a thin plate of lead on his ſtomach. He took frequent emetics and cathartics, abſtained from all fruit, and ſuch meats as were held prejudicial to ſinging. He deſiſted from haranguing the ſoldiery and the ſenate; and eſtabliſhed an officer (Phonascus) to regulate his tones in ſpeaking.

(43.) "Moſt nations have introduced muſic into their *religious ceremonies*. That the art was early admitted into the rites of the Egyptians and Hebrews, and conſtituted a conſiderable part of the Grecian and Roman religious ſervice, appears from many ancient authors. It ſoon obtained an introduction into the Chriſtian church, as the Acts of the apoſtles diſcover in many paſſages. The chanting of pſalms was introduced into the weſtern churches by St Ambrose, about A. D. 350; and in 600 was improved by St Gregory the Great. The Ambroſian chant contained four modes. In the Gregorian, the number was doubled. So early as the age of Conſtantine the Great, inſtrumental muſic was introduced into the ſervice of the church. In England, Bp. Stillingfleet ſays, muſic was employed in the church ſervice, firſt by St Augustine, and afterwards much improved by St Dunstan, who was himſelf an eminent muſician, and firſt furniſhed the Engliſh churches and convents with the organ; which ſeems to have been an improvement of the *hydraulicon*, or water organ of the Greeks.—The firſt organ ſeen in France was ſent from Conſtantinople in 757, as a preſent to king Pepin from the emperor Conſtantine V. In Italy, Germany, and England, it became frequent during the 10th century.

(44.) "During the dark ages, no work of genius or taſte in any ſcience was produced in Europe; and except in Italy, muſic was equally neglected. In the middle ages, when the moſt fertile provinces of Europe were occupied by the Goths, Huns, Vandals, and other barbarous tribes, whoſe language was as harſh as their manners were ſavage, no improvement of muſic is to be looked for. Literature, arts, and refinements, however, were encouraged at the courts of the Roman pontiffs: and thus the ſcale, the counterpoint, the beſt melodies, the chief graces and elegancies of modern muſic, have derived their origin from Italy. Counter-point, or muſic in parts, is an invention purely modern. The term harmony means, in the language of antiquity, what is now underſtood by melody. Guido, a monk of Arezzo, entertained the firſt idea of counterpoint about 1022, (ſee Aretin, N° 2.), an art which has ſince experienced gradual and imperceptible improvements, far exceeding the powers of any one individual. The term *counterpoint* or *contra punctum*, denotes its etymology and import. Muſical notation was at one time performed by ſmall points;

and the preſent mode is only an improvement of that practice. Counterpoint, therefore, denotes the notation of harmony or muſic in parts, by points *oppoſite* to each other. The improvements of this acquiſition kept pace at firſt with thoſe of the organ; and both were employed chiefly in ſacred muſic, till the 13th century, when ſecular muſic began to be cultivated.

(45.) "Before the invention of characters for time, muſic in parts muſt have conſiſted entirely of *ſimple counterpoint*, or note againſt note, as is ſtill practiſed in pſalmody. But the diſcovery of a TIME-TABLE extended infinitely the powers of combined ſounds. The ancients had no other reſource to denote time and movement in muſic, except two characters (— ⌣), for a long and a hort ſyllable. But time is of ſuch importance n muſic, that it can impart meaning and energy o the repetition of the ſame ſound; without it variety of tones has no effect with reſpect to gravity and acuteneſs. The invention of the time-table is attributed to JOHN DE MURIS, who flouriſhed about 1330. But in a M. S. of Muris himſelf, bequeathed to the Vatican library by the Queen of Sweden, that honour ſeems to be yielded to Mr Franco, who was alive in 1083. Muris, however, who, it is believed, was an Engliſhman, hough not the inventor of the *cantus menſurabilis*, by his numerous writings greatly improved it. His tract on the *Art of Counterpoint* is the moſt uſeful eſſay of which thoſe times can boaſt.

(46.) "In the 11th century, during the firſt cruſade, Europe began to emerge from the barbarous ſtupidity and ignorance which had long overwhelmed it. Then the poets and ſongſters, named TROUBADOURS, who firſt appeared in Provence, inſtituted a new profeſſion; which was patroniſed by the count of Poictu, and many other princes and barons, who had cultivated muſic and poetry. At the courts of their munificent patrons, the troubadours were treated with reſpect. The ladies, whoſe charms they celebrated, gave them the moſt flattering reception. During almoſt two centuries after the arrangement of the ſcale, and the invention of the time-table, no remains of ſecular muſic can be diſcovered, except thoſe of the troubadours. In the ſimple tunes of theſe bards no time is marked, and but little variety of notation; but they diſcover the germs of the future melodies, as well as the poetry of France and Italy. Almoſt every ſpecies of Italian poetry is derived from the Provençals. *Air*, the moſt captivating part of ſecular vocal muſic, ſeems to have had the ſame origin. The moſt ancient ſtrains extant are ſuch as were ſet to the ſongs of the troubadours. The Provençal language began to be uſed by poets about the end of the 10th century. In the 12th it became the general vehicle, not only of poetry but of proſe, to all who were ignorant of Latin. At this period VIOLARS, or performers on the vielle or viol, *juglars* or flute-players, *muſats* or players on other inſtruments, and *comics* or comedians, abounded all over Europe. The ſwarm of poet-muſicians, formerly entitled *jongleurs*, travelling from province to province, ſinging their verſes at the courts of princes. They were rewarded with cloths, horſes, arms, and money: They were employed often to ſing the verſes of troubadours, who were deficient in voice or ignorant of muſic. The term *troubadour*, therefore, implies *poetry* as well as muſic. The jongleurs, menetriers, ſtrollers, or minſtrels, were often muſicians, without any pretenſions to poetry. Theſe laſt have been common at all times; but the troubadour or bard diſtinguiſhed a particular profeſſion, only during the dawnings of literature.

(47.) "In the 13th century, the ſongs were on various ſubjects; moral, merry, amorous; and melody was little more than plain ſong or chanting. The notes were ſquare, and written on four lines only like thoſe of the Romiſh church in the cliff C, and without any marks for time. The movement and embelliſhments of the air depended on the abilities of the ſinger. By the cultivation of the voice modern muſic has ſince been much extended, for it was not till the end of St Lewis's reign that the fifth line began to be added to the ſtave. The ſinger always accompanied himſelf with an inſtrument in uniſon.

(48.) "As the lyre was the favourite inſtrument in Grecian poetry, ſo the HARP held the ſame place in the eſtimation of the poets who flouriſhed in this period. A poet of the 14th century, MACHAU, wrote a poem on the harp alone; in which he aſſigns to each of its 25 ſtrings an allegorical name; calling one *liberality*, another *wealth*, &c. The inſtrument which frequently accompanied, and indeed diſputed the pre-eminence with the harp, was the VIOL. Till the 16th century this inſtrument was furniſhed with frets; after that period it was reduced to 4 ſtrings: and ſtill under the name of VIOLIN holds the firſt place among treble inſtruments. The viol was played with a bow, and differed entirely from the *vielle*, the tones of which were produced by the friction of a wheel; the wheel performed the part of a bow.

(49.) "BRITISH HARPERS were famous long before the conqueſt. The bounty of William I. to his *joculator* or bard is recorded in Doomſday book. The harp was the favourite inſtrument for many ages, under the Britiſh, Saxon, Daniſh, and Norman kings. The FIDDLE, however, is mentioned ſo early as 1200 in the legendary life of St Chriſtopher. The ancient privileges of the minſtrels at the fairs of Cheſter are well known. The extirpation of the bards of Wales by Edward I. is likewiſe a familiar incident. But his perſecuting ſpirit ſeems to have been limited to that principality; for at the ceremony of knighting his ſon, a *multitude of minſtrels* attended. In 1315, under Edward II. ſuch extenſive privileges were claimed by the minſtrels, and ſo many diſſolute perſons aſſumed that character, that it became neceſſary to reſtrain them by expreſs laws.

(50.) "The father of genuine Engliſh poetry, who in the 14th century enlarged our vocabulary, poliſhed our numbers, and augmented our ſtore of knowledge (CHAUCER), entitles one of his poems *The Hiſtory of* ST CECILIA, the celebrated patroneſs of muſic. Neither in Chaucer, however, nor in any legendary account of this ſaint, does any thing appear to authoriſe the veneration paid to her by the votaries of muſic. Spelman ſays, the degree of *Doctor* was not granted to graduates in England before the reign of King John, about 1207; but in *Wood's Hiſtory of Oxford*, that degree is ſaid to have been conferred *in muſic*, in the reign of Henry II. The title was created on the continent in the 12th century.

(51.) "After the invention of PRINTING, muſic became an object of high importance. The names of the moſt eminent compoſers who flouriſhed in England from that time to the Reformation, were Fairfax, William of Newark, Sheryngham, Turges, Baniſter, Tudor, Taverner, Tye, Johnſon, Parſons; to whom may be added John Marbeck, who ſet the whole Engliſh cathedral ſervice to muſic.

(52.) "Before this period SCOTTISH MUSIC had advanced to a high degree of perfection. JAMES I. was a great compoſer of airs to his own verſes; and may be conſidered as the father of that plaintive melody, which in Scotch tunes is ſo pleaſing to a taſte not vitiated by modern affectation. Beſides the teſtimony of FORDUN and MAJOR, we have that of ALEXANDER TESSANI, to the muſical ſkill of that accompliſhed prince. "Among us moderns (ſays this foreigner) we may reckon *James king of Scotland*, who not only compoſed many ſacred pieces of vocal muſic, but alſo of himſelf *invented a new kind of muſic, plaintive and melancholy, different from all others*; in which he has *been imitated* by Carlo Geſueldo prince of Venoſa, who in our age has improved muſic with new and admirable inventions." Under ſuch a genius as king James I, the national muſic muſt have been greatly improved. He compoſed ſeveral anthems, which ſhew that his knowledge of the ſcience muſt have been very conſiderable. ORGANS were by him introduced into the cathedrals and abbeys of Scotland, and choir-ſervice brought to a high degree of perfection. By an able antiquary (Mr TYTLER), the great era of muſic, as of poetry, in Scotland, is ſuppoſed to have been from the beginning of the reign of James I, down to the end of that of James V. During that period flouriſhed *Gavin Douglas*, Bp. of Dunkeld, *Ballendean* archdeacon of Murray, *Dunbar*, *Henryſon*, *Scott*, *Montgomery*, *Sir David Lindſey*, and many others, whoſe fine poems have been preſerved in Banatyne's Collection, and of which ſeveral have been publiſhed by ALLAN RAMSAY in his *Evergreen*.

(53.) "Before the Reformation, as there was but one religion, there was but one kind of ſacred muſic in Europe, plain chant, and the deſcant built upon it.—That muſic likewiſe was applied to one language only, the Latin. Hence the compoſitions of Italy, France, Spain, Germany, Flanders, and England, kept pace with each other in ſtyle and excellence. All the arts ſeem to have been the companions of ſucceſsful commerce, and during the 16th century became general in every part of Europe.

(54.) "In the 16th century muſic was an indiſpenſable part of polite education. There is a collection preſerved in MS. called *Queen Elizabeth's Virginal Book*. *Tallis*, profound in muſical compoſition, and *Bird* his admirable ſcholar, were two of the authors of this famous collection. In Q. Elizabeth's reign, the genius and learning of the Britiſh muſicians were not inferior to any on the continent.

(55.) "The moſt eminent muſical theoriſts of Italy, who flouriſhed in the 16th century, were, Franchinus Gafierius of Lode, Peter Aaron of Florence, Lewis Fogliano, John Spataro, John Maria da Terentio, Lanfranco, Stephen Uanna, Anth. Francis Done, Luigi Dentice, Nicolas Vicentino, and Joſeph Zarlino, the moſt general, voluminous, and celebrated theoriſt of that period; Vincent Galilei, a Florentine nobleman, and father of the great Galileo Galilei; Maria Artuſi of Bologna, Oraſeo Tegrini, Peter Pontio, Lewis Zacconi, and Andrew Rota, an admirable contrapunctiſt. The principal Roman authors were, John Anmuccia, John Pierluigi da Paleſtrina, juſtly celebrated; Rugiero Giovanelli, Lucas Marenzio, who brought to perfection madrigals, the moſt cheerful ſpecies of ſecular muſic. Of the Venetians, Adrian Willaeri is allowed to be at the head. At the head of the Neapolitans is deſervedly placed Rocco Rodio. At Naples, too, the illuſtrious dilettante, Charles Geſualdo prince of Venoſa, is highly celebrated. Lombardy could alſo furniſh an ample liſt of eminent muſicians during the 16th century. The chief of them were, Conſtance Porta, Gaſtoldi, Biffi, Cima, Vecchi, and Monteverde. Francis Corteccia, a celebrated organiſt and compoſer, and Alexander Striggio, a lutaniſt and voluminous compoſer, were the moſt eminent Florentines.*

(56.) "The Germans have long made muſic a part of general education. During the 16th century, their moſt eminent compoſers of muſic and writers on the ſubject were, Geo Reiſchius, Michael Roſwick, Andrew Ornithorparchus, Paul Hofhaimer, Luſpeinius, Henry Loris or Lorit, Faber, Fink, and Hofman.

(57.) "In FRANCE, during the 16th century, no art except that of war made much progreſs. Ronſard, Baif, Goudimel, Claud le Jeun, Caurroy, and Maudit, are the chief French muſicians of that period.

(58.) "In SPAIN, muſic was early received into the circle of ſciences. The muſical profeſſorſhip at Salamanca was founded by Alfonzo the Wiſe, K. of Caſtile. The moſt celebrated of the Spaniſh muſicians was Francis Salinas, who had been blind from his infancy. He was a native of Burgos. Criſtopher Morales, and Thomas Lewis da Vittorio, deſerve likewiſe to be mentioned.

(59.) "The NETHERLANDS, during this period, produced many eminent compoſers; as Verletot, Gombert, Arkadelt, Berchem, Richefort, Crequilon Le Coq, Canis, Jacob Clemens Non-Papa, Peter Manchicourt, Baſton, Kerl, Rore, Orlando di Laſſo, and his ſons Ferdinand and Rodolph.

(60.) "In the 17th century, the muſical writers and compoſers, who acquired fame in England, were, Dr Nathanael Giles, Thomas Tomkins and his ſon, Elway Bevin, Orlando Gibbons, Dr William Lawes, Dr John Wilſon, John Hilton, John Playford, Captain Henry Cook, Pelham Humphrey, John Blow, William Turner, Dr Chriſtopher Gibbons, Benjamin Rogers, and Henry Purcell. About the end of the reign of James I, a muſic lecture or profeſſorſhip was founded in the univerſity of Oxford by Dr William Hychin. In the reign of Charles I, a charter was granted to the muſicians of Weſtminſter, incorporating them as the king's muſicians, into a body politic, with powers to proſecute and fine all who, except themſelves, ſhould "attempt to make any benefit or advantage of muſic in England or Wales.

(61.) "About the end of the reign of Charles II. a paſſion was excited in England for the violin, and for pieces compoſed for it, in the Italian manner. Prior to 1600, there was little other muſic except maſſes and madrigals; but from that time to the preſent, dramatic muſic became the chief object. The muſic of the church and of the chamber continued to be cultivated in Italy till near the middle of the century; yet a revolution in favour of melody and expreſſion was preparing, even in ſacred muſic, by the ſucceſs of dramatic compoſition, conſiſting of recitation and melodies for a ſingle voice. Such melodies began now to be preferred to muſic of many parts; in which canons, fugues, and full harmony, had chiefly employed the maſter's ſtudy and the hearer's attention.

(62.) "The moſt celebrated violin players of Italy, from the 16th century to the preſent time, have been Favina, M. Angelo Roſſi, Baſſani the violin maſter of Corelli, the admirable Angelico Corelli himſelf, Torelli, Alberti, Albenoni, Teſſarini, Vivaldi, Geminiani one of the moſt diſtinguiſhed of Corelli's ſcholars, Tartini, Veracini, Barbella, Locatelli, Ferrari, Martini, Boccherini, and Giardini.

(63.) "So late as the beginning of the 18th century, the performers in the operas of Germany, particularly at Hamburg, "were all tradeſmen; your ſhoemaker," ſays Riccoboni, "was often the firſt performer on the ſtage; and you might have bought fruit and ſweetmeats of the ſame girls, whom the night before you had ſeen in the characters of Armida or Semiramis. Soon, however, the German opera aroſe to a more reſpectable ſituation; and even during the 17th century many eminent compoſers flouriſhed in that country.

(64.) "Muſic was but little cultivated in France till the operas of LULLI, under the patronage of Lewis XIV. excited public attention. The favourite ſinging-maſter and compoſer of France, in the 17th century, was Michael Lambert. John Baptiſt Lulli, ſoon after this, roſe from the rank of a menial ſervant to fame, opulence, and nobility, by his ſkill in muſical compoſitions. The celebrated ſinger La Rochois was taught ſinging and acting by Lulli.

(65.) "LA MAUPIN, the ſucceſſor of La Rochois, on account of her extraordinary character and romantic adventures, deſerves to be mentioned. She was equally fond of both ſexes, fought and loved like a man, reſiſted and fell like a woman. She eloped from her huſband with a fencing maſter, of whom ſhe learnt the ſmall ſword; ſhe became an excellent fencer. At Marſeilles ſhe became enamoured of a young lady, whom ſhe ſeduced: on account of this whimſical affection the lady was by her friends confined in a convent. La Maupin obtained admiſſion into the ſame convent as a novice: ſhe ſet fire to the convent, and in the confuſion carried off her favourite. At Paris, when ſhe appeared on the ſtage in 1695, Dumeni, a ſinger, having affronted her, ſhe put on men's clothes, and inſiſted on his drawing his ſword and fighting her; when he refuſed, ſhe caned him, and took from him his watch and ſnuff-box as trophies of her victory. At a ball given by Monſieur, brother of Lewis XIV. ſhe again put on men's clothes; and having behaved impertinently to a lady, three of the lady's friends, ſuppoſing Maupin to be a man, called her out; ſhe killed them all; and returning coolly to the ball, told the ſtory to Monſieur, who obtained her pardon. She became afterwards miſtreſs to the elector of Bavaria. This prince, quitting her for the counteſs of Arcoſs, ſent her by the count, huſband of that lady, a purſe of 40,000 livres: ſhe threw it at the count's head, telling him, it was a recompenſe worthy of ſuch a ſcoundrel and cuckold as himſelf. At laſt, ſeized with a fit of devotion, ſhe recalled her huſband, and ſpent the remainder of her life in piety. She died in 1707, at the age only of 34.

(66.) "After Purcell's time the chief compoſers for the church were Clarke, Dr Holden, Dr Creyghton, Tucker, Aldrich, Golwin, Weldon, Dr Crofts, Dr Green, Boyce, Nares, and John Stanley, who attained high proficiency in muſic, although from two years old totally deprived of ſight.

(67.) "The annals of modern muſic have hitherto furniſhed no event ſo important to the progreſs of the art as the invention of *recitative* or *dramatic melody*; a ſtyle of muſic which reſembles the manner of the ancient rhapſodiſts. 'The *Orſeo* of Politian was the firſt attempt at muſical drama. It was afterwards perfected by Metaſtaſio. No muſical dramas, ſimilar to thoſe afterwards known by the names of OPERA and ORATORIO, had exiſtence in Italy before the 17th century. About 1600 eunuchs were firſt employed for ſinging in Italy. There ſeem to have been no *ſinging* eunuchs in ancient times, unleſs the GALLI or *archigalli*, prieſts of Cybele, were ſuch. Caſtration was never practiſed merely to preſerve the voice till about the end of the 16th century.

(68.) "At Rome, the firſt public theatre opened for muſical dramas, in modern times, was *il Torre de Nona*, where in 1671 *Giaſone* was performed. In 1679, the opera of *Dou è Amore*, ſet by the famous organiſt Bernard Paſquini, was repreſented at *Nilla Sala de Signori Capranica*; a theatre which ſtill ſubſiſts. In 1680, *L'Oneſta negl' Amore* was exhibited; the firſt dramatic compoſition of the elegant, profound, and original ALEXANDER SCARLATTI. "The inhabitants of Venice cultivated and encouraged the muſical drama with more zeal than the reſt of Italy, during the end of the 17th and beginning of the 18th century; yet the opera was not eſtabliſhed in Venice before 1637; when the firſt regular drama was performed: it was Andromeda. In 1680 the opera of Berenice was exhibited at Padua with aſtoniſhing ſplendour. There were choruſes of 100 virgins, 100 ſoldiers, 100 horſemen in iron armour, 40 cornets of horſe, 6 trumpeters on horſeback, 6 drummers, 6 enſigns, 6 ſackbuts, 6 great flutes, 6 minſtrels playing on Turkiſh inſtruments, 6 others on octave flutes, 6 pages, 3 ſergeants, 6 cymbaliſts, 12 huntſmen, 12 grooms, 12 coachmen, 2 lions led by two Turks, 2 elephants by two others; Berenice's triumphal car drawn by 4 horſes, 6 other cars with priſoners and ſpoils, &c.

Among the ſcenes and repreſentations were a vaſt plain with two triumphal arches, another plain with tents, and a foreſt for the chaſe: in act third, the royal dreſſing-room; ſtables with 100 live horſes, portico adorned with tapeſtry, and a ſtupendous palace in perſpective. At the end of the third act, an enormous globe deſcended from the ſky, divided itſelf into other globes ſuſpended in the air, and ornamented with emblematical figures of Time, Fame, Honour, &c. Early in the 17th century, machinery and decoration uſurped the importance due to poetry and muſic in ſuch exhibitions.

(69.) "Few inſtances occur of muſical dramas at Naples till the beginning of the 18th century. Before the time of the elder Scarlatti, Naples had been leſs fertile in great contrapunctiſts, and leſs diligent in the cultivation of dramatic muſic, than any other ſtate of Italy. Since that time all the reſt of Europe has been furniſhed with compoſers and performers from that city.

(70.) "The word OPERA ſeems to have been familiar to Engliſh poets from the beginning of the 17th century. *Stilo recitativo*, a recent innovation in Italy, is mentioned by Ben Johnſon ſo early as 1617. From this time it was uſed in maſques, occaſionally in plays, and in cantatas, before a regular drama wholly ſet to muſic was attempted. By the united abilities of QUINAULT and LULLI, the opera in France had ariſen to high favour. This circumſtance afforded encouragement to ſeveral attempts at dramatic muſic in England, by SIR WILLIAM D'AVENANT and others, before the muſic, language, or performers of Italy were employed on our ſtage. Pieces, ſtyled *dramatic operas*, preceded the Italian opera on the ſtage of England. Theſe were written in Engliſh, and exhibited with a profuſe decoration of ſcenery and habits, and with the beſt ſingers and dancers that could be procured.

(71.) "During the 17th century, whatever attempts were made in the muſical drama, the language ſung was always Engliſh. About the end of that century, however, Italian ſinging began to be encouraged, and vocal as well as inſtrumental muſicians from that country began to appear in London. The firſt muſical drama, performed wholly after the Italian manner in recitative for the narrative parts, and meaſured melody for the airs, was *Arſinoe Queen of Cyprus*, tranſlated from an Italian opera of the ſame name, written by STANZANI of Bologna. The Engliſh verſion of this opera was ſet to muſic by Thomas Clayton, one of the royal band, in the reign of William and Mary. The ſingers were all Engliſh, Meſſrs Hughes, Leveredge, and Cook; Mrs Tofts, Mrs Croſs, and Mrs Lyndſey. The tranſlation of Arſinoe, and the muſic to which it is ſet, are execrable; yet ſuch is the charm of novelty, that this miſerable performance, deſerving neither the name of a *drama* by its poetry, nor of an *opera* by its muſic, ſuſtained 24 repreſentations, and the 2d year 11. Operas, notwithſtanding their deficiencies in poetry, muſic, and performance, became ſo formidable to our actors at the theatres, that it appears from the *Daily Courant*, 14th January 1707, a ſubſcription was opened "for the encouragement of the comedians acting in the Haymarket, and to enable them to keep the diverſion of plays under a ſeparate intereſt from operas."

(72.) "Mr ADDISON's opera of *Roſamond* appeared about this time; but the muſic ſet by Clayton is ſo contemptible, that the merit of the poetry, however great, could not of it itſelf long ſupport the piece. The choice of ſo mean a compoſer as Clayton, and Mr Addiſon's partiality to his abilities, betray a want of muſical taſte in that elegant author. The firſt truly great ſinger who appeared on the ſtage of Britain was *Cavalier Nicolino Grimaldi*, commonly called *Nicolini*. He was a Neapolitan; and though a beautiful ſinger, was ſtill more eminent as an actor. In the *Tatler*, N° 115, the elegance and propriety of his action are particularly deſcribed. Recently before his appearance, *Valentine Urbani*, and a female ſinger called *The Baroneſs*, arrived. Margarita De l'Epini, who afterwards married Dr Pepuſch, had been in this country before. The firſt opera performed *wholly in Italian*, by *Italian ſingers*, was *Almahide*. Operas were then generally performed twice a-week.

(73.) "The year 1710 is diſtinguiſhed in the annals of muſic by the arrival in Britain of George Frederick Handel. (See HANDEL.) The fame of this great muſician had reached this country before he arrived; and Aaron Hill, of the Haymarket theatre, inſtantly applied to him to compoſe an opera. It was *Rinaldo*; the admirable muſic of which he produced entirely in a fortnight. Soon after this period, appeared, for the firſt time as an opera ſinger, the celebrated Mrs ANASTASIA ROBINSON, afterwards Counteſs of Peterborough. She made her firſt public exhibitions in the concerts at York-buildings; and acquired ſo much the public favour, that her father took a houſe in Golden Square, for weekly concerts and aſſemblies, in the manner of *Converſazioni*, which became the reſort of the moſt polite audiences.

(74.) "The conducting of the opera having been found more expenſive than profitable, it was ſuſpended from 1717 till 1720, when a fund of 50,000l. for ſupporting and carrying it on was ſubſcribed by the firſt perſonages of the kingdom. The ſubſcribers, of whom King George I. was one for 1000l. were formed into a ſociety, named *The Royal Academy of Muſic*. Handel, being appointed to engage performers, went to Dreſden, where Italian operas were performed in the moſt ſplendid manner, at the court of Auguſtus king of Poland; where he engaged Seneſino Bereſtadt, Boſchi, and the Duranſtanti.

(75.) "In 1723, the celebrated FRANCESCA CUZZONI appeared as a firſt-rate ſinger; and two years afterwards arrived her diſtinguiſhed rival Fauſtina Bordoni. In a cantabile air, though the notes Cuzzoni added were few, ſhe enriched the cantilena with the moſt beautiful embelliſhments. Her ſhake was perfect; ſhe had a creative fancy; and ſhe occaſionally accelerated and retarded the meaſure in the moſt artificial and able manner, by what is in Italy called *tempo rubato*. Her high notes were unrivalled in clearneſs and ſweetneſs.

(76.) "FAUSTINA BORDONI, wife of the celebrated Saxon compoſer HASSE, invented a new kind of ſinging, by running diviſions, with a neatneſs and velocity which aſtoniſhed all who heard her. By taking her breath imperceptibly, ſhe had the art of ſuſtaining a note apparently longer than any other ſinger. Her beats and trills were ſtrong and rapid; her intonation perfect. Her profeſſional perfections were enhanced by a beautiful face, fine ſymmetry of figure, and a countenance and geſture on the ſtage, which indicated an entire intelligence of the ſeveral parts allotted to her. Theſe two angelic performers excited ſo ſignally the attention of the public, that a violent party ſpirit between the abettors of the one and of the other was formed; yet ſo diſtinct were their ſtyles of ſinging, ſo different their talents, that the praiſe of the one was no reproach to the other.

(77.) "In leſs than 7 years, the whole 50,000l. ſubſcribed by the Royal Academy, beſides the produce of admiſſion to non-ſubſcribers, was expended, and the governor and directors relinquiſhed their engagements; conſequently, at the cloſe of 1727, the whole band of ſingers diſperſed; and Seneſino, Fauſtina, Balde, Cuzzoni, Nicolini, Farinelli, and Boſche, went to Venice. HANDEL, however, at his own riſk, recommenced the opera, and engaged a band of performers entirely new, in 1729. Theſe were Signora Bernacchi, Signora Merighi, Signora Strada, Signor Annibal Pio Fabri, his wife, Signora Bertoldi, and John Godfrid Reimſchneider.

(78.) "The ſacred muſical drama, or ORATORIO, was invented early in the 14th century. Every nation in Europe ſeems firſt to have had recourſe to religious ſubjects for dramatic exhibitions. The oratorios had been common in Italy during the 17th century; they had never been *publicly* introduced in England till Handel exhibted, in 1732, his oratorios of *Eſther*, and *Acis and Galatea*. The moſt formidable oppoſition, which Handel met with, was a new theatre for exhibiting theſe operas, in Lincoln's-inn Fields, under Nicolas Porpora, a reſpectable compoſer. A difference having occurred between Handel and Seneſino, Seneſino deſerted the Haymarket, where Handel managed, and engaged at Lincoln's-inn Fields. To ſupply the place of Seneſino, Handel brought over JOHN CARESTINI, a ſinger of the moſt extenſive powers. His voice was at firſt a powerful and clear ſoprano; afterwards it changed into the fulleſt, fineſt, deepeſt, counter-tenor that has perhaps ever been heard. His perſon was tall, beautiful, and majeſtic. He rendered every thing he ſung intereſting by energy and taſte. In the execution of difficult diviſions from the cheſt, his manner was articulate and admirable. The opera under Porpora was removed to the Haymarket, which Handel had left. Handel occupied the theatre of Lincoln's-inn Fields; but his rivals now acquired a vaſt advantage, by the arrival of Carlo Broſchi dello Farinelli. This renowned ſinger tranſcended all anterior vocal excellence. No vocal performer of the 18th century has been ſo unanimouſly allowed to poſſeſs an uncommon power, ſweetneſs, extent, and agility of voice, as FARINELLI. Nicolini, Seneſino, and Careſtini, gratified the eye as much by the dignity, grace, and propriety of their action, as the ear by the judicious uſe of a few notes within a ſmall compaſs of voice; but Farinelli, without ſignificant geſtures or graceful attitudes, enchanted and aſtoniſhed his hearers, by the force, extent, and melliſluous tones of the mere organ, when he had nothing to execute, articulate, or expreſs. Tho' during the time of ſinging he was as motionleſs as a ſtatue, his voice was ſo active, that no intervals were too cloſe, too wide, or too rapid for his execution.

(79.) "HANDEL, having loſt a great part of his fortune by the opera, tried the public gratitude in a benefit, which was not diſgraced by the event: for the theatre was ſo crowded, that he cleared 800l. After a fruitleſs attempt by HEIDEGGER, the coadjutor of Handel in the conduct of the opera, and patentee of the King's Theatre in Haymarket, to procure a ſubſcription for continuing it, it was given up. About this time the ſtatue of Handel was erected in Vauxhall, at the expenſe of Mr Tyers, the proprietor, in 1739. Handel carried on oratorios at the Haymarket. The earl of Middleſex undertook the troubleſome office of *impreſario* of the Italian opera. He engaged the King's Theatre, with a band of ſingers from the continent almoſt entirely new. CALUPPI was his compoſer. Handel, almoſt ruined, retired to Ireland. In 1744, he again attempted oratorios at the King's theatre, which was, till 1746, unoccupied, on account of the rebellion. The arrival of GIARDINI in London this year forms a memorable æra in inſtrumental muſic. His powers on the violin were unequalled. The ſame year Dr CROZA, then manager of the opera, eloped, leaving the performers, and innumerable trades people, his creditors. This incident put an end to operas for ſome time.

(80.) "This year a comic opera, called *Il Filoſofo di Campagno*, compoſed by Caluppi, was exhibited, which ſurpaſſed in muſical merit all the comic operas performed in England till the *Bicona Figliula*. Signora PAGNINI acquired ſuch fame by the airs allotted to her in that piece, that the crowds at her benefit were beyond example. Caps were loſt, gowns torn in pieces, and ladies in full dreſs, without ſervants or carriages, were obliged to walk home, amidſt the merriment of the ſpectators. At this period the arrival of John Manzoli marked a ſplendid æra in the annals of muſical drama, by conferring on ſerious opera a degree of importance to which it had ſeldom yet ariſen. Manzoli's voice was the moſt powerful and voluminous ſoprano that had been heard ſince the time of Farinelli; his manner of ſinging was full of taſte and dignity.

(81.) "At this time TENDUCCI, who had been in England ſome time before, and was now returned much improved, performed in the ſtation of ſecond man to Manzoli. GAETANO GUADAGNI made a great figure at this time. He had been in this country in 1748, as ſerious-man in a burletta troop of ſingers. His voice, however, attracted the notice of Handel, who aſſigned him the parts in his oratorios, the *Meſſiah* and *Samſon*, originally compoſed for Mrs Cibber. He quitted London about 1753, and the higheſt expectations of his abilities were raiſed by fame before his 2d arrival As an actor he ſeems to have had no equal in Europe. His figure was uncommonly elegant and noble; his countenance replete with intelligence and dignity; his attitudes were full of grace and propriety. His voice was now comparatively thin and feeble; he had changed it to a ſoprano, and extended its compaſs from 6 or 7 notes to 14 or 15. The muſic he ſung was the moſt ſimple imaginable; a few notes, with frequent pauſes, were all he required. In the effuſions, ſeemingly extemporaneous, he diſplayed the native power of melody unaided by harmony, or even by uniſonous accompaniment: the pleaſure he communicated proceeded principally from his artful manner of diminiſhing the tones of his voice, like the dying notes of the **Æolian harp**. Moſt other ſingers affect a ſwell, or *meſſa de voce;* but Guadagni, after beginning a note with force, attenuated it ſo delicately that it poſſeſſed all the effect of extreme diſtance. During the ſeaſon 1770 and 1771, Tenducci was the ſucceſſor of Guadagni. This performer, who appeared in England firſt only as a ſinger of the 2d or 3d claſs, was during his reſidence in Scotland and Ireland ſo much improved as to be well received as firſt man, not only on the ſtage of London, but in all the great theatres of Italy.

(82.) "In the firſt opera performed this ſeaſon (*Lucio Vero*) appeared Miſs **Cecilia Davies**, called in Italy L'Ingleſina. Miſs Davies was the firſt *Engliſh* woman who had ever been thought worthy of ſinging on any ſtage in Italy. She even performed with eclat the principal female characters on many of the great theatres of that country. **Gabrielli** only on the Continent was ſaid to ſurpaſs her. Her voice, though not of great volume, was clear and perfectly in tune; her ſhake was open and diſtinct. The flexibility of her throat rendered her execution equal to the moſt rapid diviſions. Next ſeaſon introduced **Venanzio Rauzzini**, a beautiful and animated young man; a compoſer as well as a ſinger. His voice was ſweet, clear, flexible; in compaſs more than two octaves.

(83.) "The ſeaſon 1775 and 1776 was rendered memorable by the arrival of the celebrated **Caterina Gabrielli**, ſtyled **La Cuochetina**, being the daughter of a cardinal's *cook* at Rome. Her manner and appearance depicted dignity and grace. Her voice, tho' exquiſite, was not very powerful. Her chief excellence was the neatneſs and rapidity of her execution. Miſs Davies ſung many of the ſame ſongs in the ſame ſtyle, and with a neatneſs ſo nearly equal, that common hearers could diſtinguiſh no difference. The diſcriminating critic, however, diſcovered a ſuperior ſweetneſs in the natural tone of Gabrielli's voice, and an elegance in the finiſhing of her muſical periods, ſuperior not only to Miſs Davies, but to every other ſinger of her time.

(84.) "About this time, the proprietors of the Pantheon ventured to engage **Agujari** at the enormous ſum of L. 100 per night, for ſinging two ſongs only! *Lucretia Agujari* was a truly wonderful performer. The lower part of her voice was full, round, and of excellent quality; its compaſs amazing. She had two octaves of fair natural voice, from A on the fifth line in the baſs to A on the 6th line in the treble, and beyond that in *alt* ſhe had in early youth more than another octave. She has been heard to aſcend to B b *in altiſſimo*. Her ſhake was open and perfect; her intonation true; her execution marked and rapid; the ſtyle of her ſinging, in the natural compaſs of her voice, grand and majeſtic. In 1776 arrived **Anna Pozzi**. She poſſeſſed a voice clear, ſweet, and powerful; but her inexperience, both as an actreſs and a ſinger, produced a contraſt very unfavourable to her, when compared with ſo celebrated a performer as Gabrielli. She has ſince, however, become one of the moſt admired female ſingers in Italy. After the departure of Agujari for the laſt time, the managers of the Pantheon engaged **Georgi** as her ſucceſſor. Her voice was exquiſitely fine, but totally uncultivated. She is ſince much improved.

(85.) "During the ſeaſon 1777 and 1778, the principal ſingers at the opera in London were Francis Roncaglia and Frances Danze, afterwards Mad. Le Brun. **Roncaglia** poſſeſſed a ſweet-toned voice, but of the three great requiſites of a complete ſtage-ſinger, pathos, grace, and execution, which the Italians call *cantabile*, *grazioſo*, and *bravura*, he could lay claim only to the ſecond. His voice, a *voce de camera*, when confined to the *grazioſa* in a room, leaves nothing to wiſh for **Danze** had a vioce well in tune, a good ſhake, great execution, prodigious compaſs, with great knowledge of muſic; yet the pleaſure her performance imparted was not equal to their accompliſhments: but her object was not ſo much pathos and grace, as to ſurpriſe by the imitation of the tone and difficulties of inſtruments.

(86.) "This year **Gaspar Pacchierotti** appeared in London, whither his high reputation had penetrated long before. The natural tone of his voice is intereſting, ſweet, and pathetic. His compaſs downwards is great, with an aſcent up to B b, and ſometimes to C *in alt*. He poſſeſſes an unbounded fancy, and the power not only of executing the moſt difficult and refined paſſages, but of inventing embelliſhment entirely new. *Ferdinand Bertoni*, a well-known compoſer, came along with Pacchierotti to Britain.

(87.) "During the laſt ten years, **dancing** has become an important branch of the amuſements of the opera-houſe. Mad. Heinel, M. Veſtris, Junior, and Mad. Baccelli, had during ſome years delighted the audience at the opera; but on the arrival of M. **Vestris**, the elder, pleaſure was exchanged for ecſtaſy. In 1781, Pacchierotti had been ſo often heard, that his ſinging was no impediment to converſation; but while the elder Veſtris was on the ſtage, not a breathing was to be heard. Thoſe lovers of muſic, who talked the loudeſt while Pacchierotti ſung, were in terror leſt the graceful movements of Veſtris, *the god of the dance*, ſhould be diſturbed by audible approbation. Since that time, the moſt mute and reſpectful attention has been paid to the manly grace of Le Picq, and the light fantaſtic toe of the young Veſtris; to the Roſſis, the Theodores, the Coulons, the Hillinbſburgs; while the ſlighted ſingers have been diſturbed, not by the violence of applauſe, but the clamour of inattention.

(88.) "The year 1784 was rendered memorable in the annals of muſic by the ſplendid and magnificent manner in which the birth and genius of Handel were celebrated in Weſtminſter Abbey and the Pantheon, by five performances of pieces ſelected from his works, and executed by a band of more than 500 voices and inſtruments, in the preſence of their majeſties and the firſt perſonages of the kingdom. The commemoration of Handel has been ſince eſtabliſhed as an annual muſical feſtival for charitable purpoſes; in which the number of performers and the perfection of the performances have continued to increaſe. In 1785 the band, vocal and inſtrumental, amounted to 616; in 1786 to 741; in 1787 to 806.

(89.) "Dr Burney publiſhed An Account of the Muſical Performances in Commemoration of Handel, for the benefit of the Muſical Fund. The members and guardians of that fund are now incorporated under the title of *Royal Society of Muſicians*. (See Handel, § 2.) This year is diſtinguiſhed by the arrival of Mad. Mara, whoſe performance, in the commemoration of Handel in Weſtminſter Abbey, inſpired an audience of 3000 of the firſt people of the kingdom with ecſtaſy.

(90.) "In 1786 arrived *John Rubinelli*. His voice is a true and full contralto from C in the middle of the ſcale to the octave above. His ſtyle is grand; his execution neat and diſtinct; his taſte and embelliſhments new, ſelect, and maſterly.

(91.) "In 1788 a new dance, compoſed by the celebrated M. Noverre, called *Cupid and Pſyche*, was exhibited along with the opera *La Locandiera*, which produced ſo great pleaſure to the ſpectators, that Noverre was unanimouſly brought on the ſtage, and crowned with *laurel* by the principal performers. This, though common in France, was a new mark of approbation in England. This year arrived Luige Marchesi, a ſinger whoſe talents have been admired on every great theatre of Europe. Marcheſi's ſtyle of ſinging is not only elegant and refined in an uncommon degree, but often grand and full of dignity, particularly in his recitative and occaſional low notes. His variety of embelliſhment and facility of running extempore diviſions are wonderful. Many of his graces are elegant and of his own invention.

(92.) "The three greateſt Italian ſingers of the preſent times are certainly Pacchierotti, Rubinelli, and Marcheſi. In diſcriminating the ſeveral excellencies of theſe great performers, a very reſpectable judge, Dr Burney, has particularly praiſed the ſweet and touching voice of Pacchierotti; his fine ſhake, his exquiſite taſte, his great fancy, and his divine expreſſion in pathetic ſongs: Of Rubinelli's voice, the fulneſs, ſteadineſs, and majeſty, the accuracy of his intonations, his judicious graces: Of Marcheſi's voice, the elegance and flexibility, his grandeur in recitative, and his boundleſs fancy and embelliſhments. Here we muſt acknowledge the aid we have derived from Dr *Burney's Hiſtory of Muſic*, the beſt work on the ſubject yet publiſhed. During the latter part of the laſt century many eminent compoſers have flouriſhed on the continent; ſuch as Jomelli, the Bachs, Gluck, Haydn, and many others, whoſe different ſtyles and excellencies deſerve to be particulariſed. We can only juſt mention the late *king of Pruſſia*, the late *elector of Bavaria*, and prince Lobkowitz, an eminent dilettanti of modern times.

(93.) "Beſides the opera-ſingers abovementioned, our theatres and public gardens have exhibited ſingers of conſiderable merit. In 1730, Miſs Rafter, afterwards Mrs Clive, firſt appeared on the ſtage at Drury-lane. The ſame year introduced Miſs Cecilia Young, afterwards the wife of Dr Arne. Her ſtyle of ſinging was infinitely ſuperior to that of any other Engliſh woman of her time. Our favourite muſicians at this time were, Dubourg, Clegg, Clarke, and Feſting, on the violin; Kytch on the hautboy; Jack Feſting on the German flute; Baſton on the common flute; Karba on the baſſoon; Valentine Snow on the trumpet; and on the organ, Roſeingrave, Green, Robinſon, Magnus, Jack James, and the blind Stanley. The favourite playhouſe ſinger was Salway; and at concerts Mountier of Chicheſter. As compoſers for our national theatre, Pepuſch and Galliard ſeem to have been unrivalled till 1732; when two competitors appeared, who were long in poſſeſſion of the public favour: viz. John Frederick Lampe and Thomas Auguſtus Arne.

(94.) "In 1736 Mrs Cibber, who had captivated every hearer of ſenſibility by her native ſweetneſs of voice and powers of expreſſion as a ſinger, made her firſt attempt as a tragic actreſs. The ſame year Beard became a favourite ſinger at Covent-Garden. At this time Miſs Young and her two ſiſters, Iſabella and Eſther, were the favourite Engliſh female ſingers. In 1738 was inſtituted the fund for the ſupport of decayed muſicians and their families. In 1745 Mr Tyers, proprietor of Vauxhall gardens, firſt added vocal muſic to the other entertainments of that place. A ſhort time before, Ranelagh had become a place of public amuſement.

(95.) "In 1749 arrived Giardini, whoſe great taſte, hand, and ſtyle of playing on the violin, procured him univerſal admiration. A few years after his arrival he formed a morning *academia* or concert at his houſe, compoſed chiefly of his ſcholars. About this time San Martini and Charles Aviſon were eminent compoſers. Of near 150 muſical pieces brought on our national theatres within theſe 50 years, 30 of them at leaſt were ſet by Arne. The ſtyle of this compoſer, if analyſed, would perhaps appear to be neither Italian nor Engliſh, but an agreeable mixture of both and of Scotch.

(96.) "The late earl of Kelly, deſerves particular notice, as poſſeſſed of a very eminent degree of muſical ſcience, far ſuperior to other dilettanti, and perhaps not inferior to any profeſſor of his time. There was no part of theoretical or practical muſic in which he was not thoroughly verſed. He poſſeſſed a ſtrength of hand on the violin, and a genius for compoſition, with which few profeſſors are gifted.

(97.) "Charles Frederic Abel was an admirable muſician; his performance on the viol de gamba was complete and perfect. He had a hand which no difficulties could embarraſs; a taſte the moſt refined and delicate; a judgment ſo correct and certain as never to permit a ſingle note to eſcape him without meaning. His compoſitions were eaſy and elegantly ſimple. In writing and playing an *adagio* he was ſuperior to all praiſe. His manner ſoon became the model of imitation. Bartholemon, Cervetto, Cramer, and Croſdil, may be ranked as of his ſchool. All lovers of muſic muſt have lamented that Abel in his youth had not attached himſelf to an inſtrument more worthy of his genius, taſte, and learning, than the viol de gamba, that remnant of the old cheſt of viols, which during the 17th century was a neceſſary appendage of a nobleman's or gentleman's family throughout Europe. Since the death of the late elector of Bavaria the inſtrument ſeems quite laid aſide. The celebrated performer on the violin, Lolle, came to England in 1785. Such was his caprice, that he was ſeldom heard; and ſo eccentric were his ſtyle and compoſition, that by many he was regarded as a madman. He was, however, during his lucid intervals, a very great and expreſſive performer in the ſerious ſtyle.

(98.) " Mrs Billington, after diſtinguiſhing herſelf in childhood as a neat and expreſſive performer on the piano-forte, appeared all at once in 1786 as a ſweet and captivating ſinger. The natural tone of her voice is ſo exquiſitely ſweet, her knowledge of muſic ſo conſiderable, her ſhake ſo true, her cloſes and embelliſhments ſo various, her expreſſions ſo grateful, that envy only or apathy could hear her without delight. The preſent compoſers, and performers of the firſt claſs, are ſo well known to the lovers of the art, that it would be needleſs and improper to mention them particularly; and to deſcribe the diſtinctive powers of Bartholemon, Cramer, Pieltain, Raimonde, and Salamon, would be too delicate a taſk.

(99.) " The Catch-club at the Thatched Houſe, inſtituted in 1762 by the late earl of Eglinton, the duke of Queenſberry, and others; and the *concert of ancient muſic*, ſuggeſted by the earl of Sandwich in 1776, have had a beneficial effect in improving the art.

ELEMENTS OF MUSIC,

Theoretical and Practical.

(100.) Among the various Treatiſes that have been publiſhed on this enchanting ſcience, by the moſt eminent authors, in the courſe of the 18th century, none has obtained higher or more juſt applauſe for method, perſpicuity, conciſeneſs, and elegance, than that of M. D'Alembert. Perſuaded, that, although we were to attempt to give an original treatiſe on muſic, we could produce nothing equal, much leſs ſuperior to it, we ſhall lay it before our readers, with very little abridgment, excepting in thoſe notes which are not eſſential to the ſcience. Indeed the treatiſe is ſo ſyſtematically compoſed, that any attempt to abridge it much would prove impracticable, without rendering it either deficient or obſcure. To M. D'Alembert's Elements, as well as to the preceding *Introduction* and *Hiſtory*, we have prefixed *Numerals*, for the convenience of references. The new ſeries of numbers, that begin with the *definitions of Terms*, are prefixed by M. D'Alembert himſelf.

Preliminary Discourse.

(101.) Music may be conſidered either as an **Art**, which has for its object one of the greateſt pleaſures of which our ſenſes * are ſuſceptible; or as a **science**, by which that art is reduced to principles. This is the double view in which we mean to treat of muſic in this work.

(102.) It has been the caſe with muſic as with all the other arts invented by men. Some facts were at firſt diſcovered by accident; ſoon afterwards reflection and obſervation inveſtigated others; and from theſe facts, properly diſpoſed and united, philoſophers formed a body of ſcience, which afterwards increaſed by degrees.

(103.) The firſt theories of muſic were perhaps as ancient even as the age of Pythagoras; nor does hiſtory leave us any room to doubt, that from the period when that philoſopher taught, the ancients cultivated muſic, both as an art and as a ſcience, with great aſſiduity. But there remains to us much uncertainty concerning the degree of perfection to which they brought it. We ſhall, therefore, content ourſelves with conſidering the preſent ſtate of muſic, and limit our endeavours to the explication of thoſe acceſſions which have accrued to the theory of muſic in theſe later times.

(104.) There are two departments in muſic, **melody** and **harmony**. Melody is the art of arranging ſeveral ſounds in ſucceſſion one to another in a manner agreeable to the ear; harmony is the art of pleaſing that organ by the union of ſeveral ſounds which are heard at one and the ſame time. Melody has been known and felt through all ages; perhaps the ſame cannot be affirmed of harmony; we know not whether the ancients made any uſe of it or not, nor at what period it began to be practiſed. Not but that the ancients certainly employed in their muſic thoſe chords which were moſt perfect and ſimple; ſuch as the octave, the fifth, and the third; but it ſeems doubtful whether they knew any of the other conſonances or not.

(105.) If that harmony which we now practiſe owes its origin to the experience and reflection of the moderns, there is the higheſt probability that the firſt eſſays of this art, as of all the others, were feeble, and the progreſs of its efforts almoſt imperceptible; and that, in the courſe of time, improving by ſmall gradations, the ſucceſſive labours of ſeveral geniuſes have elevated it to that degree of perfection in which at preſent we find it.

(106.) The firſt inventor of harmony eſcapes our inveſtigation, from the ſame cauſes which leave us ignorant of thoſe who firſt invented each particular ſcience; becauſe the original inventors could only advance one ſtep, a ſucceeding diſcoverer afterwards made a more ſenſible improvement, and the firſt imperfect eſſays in every kind were loſt in the more extenſive and ſtriking views to which they led.

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* *In this paſſage, and in the definitions of melody and harmony, our author ſeems to have adopted the vulgar error, that the pleaſures of muſic terminate in corporeal ſenſe. He would have pronounced it abſurd to aſſert the ſame thing of painting. Yet both are in the ſame predicament. Corporeal ſenſe is the* [illegible] *of ſound; but it is plain from our immediate feelings, that the reſults of ſound arranged according to the principles of melody, and the laws of harmony, are the objects of a reflex or internal ſenſe.* See Mr Aviſon's Treatiſe on Muſical Expreſſion.

(107.) The firſt compoſitions upon the laws of harmony which we know, are of no higher antiquity than two ages prior to our own; and they were followed by many others. But none of theſe eſſays were capable of ſatisfying the mind concerning the principles of harmony; they were confined almoſt entirely to the ſingle occupation of collecting rules, without endeavouring to account for them; neither had their analogies one with another, nor their common ſource, been perceived: an unenlightened experience was the only compaſs by which the artiſt could direct his courſe.

(108.) M. RAMEAU was the firſt who began to transfuſe light and order through this chaos. In the different tones produced by the ſame ſonorous body, he found the moſt probable origin of harmony, and the cauſe of that pleaſure which we receive from it. His principle he unfolded, and ſhowed how the different phenomena of muſic were produced by it: he reduced all the conſonances to a ſmall number of ſimple and fundamental chords, of which the others are only combinations or various arrangements. He, in ſhort, diſcovered and rendered ſenſible to others, the mutual dependance between melody and harmony.

(109.) Though theſe different topics may be contained in the writings of this celebrated artiſt, and in theſe writings may be underſtood by philoſophers who are likewiſe adepts in muſic; ſtill, however, ſuch muſicians as were not *philoſophers*, and ſuch philoſophers as were not *muſicians*, have long deſired to ſee theſe objects brought more within the reach of their capacity; ſuch is the intention of the treatiſe I now preſent to the public. I had formerly compoſed it for the uſe of ſome friends. As the work appeared to them clear and methodical, they engaged me to publiſh it, perſuaded that it might be uſeful to facilitate the progreſs of initiates in the ſtudy of harmony. This was the only motive, which could have determined me to publiſh a book, of which I might without heſitation aſſume the honour, if its materials had been the fruits of my own invention, but in which I can now boaſt no other merit, than that of having developed, elucidated, and perhaps in ſome reſpects improved, the ideas of another. (See M. Rameau's letter. *Merc. de Mai*, 1752.)

(110.) The firſt edition of this eſſay, publiſhed in 1752, having been favourably received, I have endeavoured to render this more perfect. The detail, which I mean to give of my labour, will preſent the reader with a general idea of the principle of M. Rameau, of the conſequences deduced from it, of the manner in which I have diſpoſed this principle and its conſequences; in ſhort, of what is ſtill awanting, and might be advantageous to the theory of this amiable art; of what ſtill remains for the learned to contribute towards the perfection of this theory; and of the rocks and quickſands which they ought to avoid in this reſearch.

(111.) Every ſonorous body, beſides its principal ſound, exhibits alſo to the ear the 12th and 17th major of that ſound. This multiplicity of different yet concordant ſounds, known for a conſiderable time, conſtitutes the baſis of the whole theory of M. Rameau, and the foundation upon which he builds the whole ſuperſtructure of a muſical ſyſtem. In theſe our *elements* may be ſeen, how from this experiment one may deduce, by an eaſy operation of reaſon, the chief points of melody and harmony; the perfect CHORD, as well major as minor; the two TETRACHORDS employed in ancient muſic; the formation of our DIATONIC ſcale; the different VALUE which the ſame ſound may have in that ſcale, according to the turn which is given to the BASS; the alterations which we obſerve in that ſcale, and the reaſon why they are totally imperceptible to the ear; the rules peculiar to the MODE MAJOR; the difficulty in INTONATION of forming three TONES in ſucceſſion; the reaſon why two perfect chords are proſcribed in immediate ſucceſſion in the diatonic order; the origin of the minor mode, its ſubordination to the mode major, and its variations; the uſe of DISCORD; the cauſes of ſuch effects as are produced by different kinds of muſic, whether DIATONIC, CHROMATIC, or ENHARMONIC; the principles and laws of TEMPERAMENT. (See all theſe articles.) In this diſcourſe we can only point out theſe different objects, the ſubſequent eſſay being deſigned to explain them with the minuteneſs and preciſion which they require.

(112.) One end which we have propoſed in this treatiſe, was not only to place the diſcoveries of M. Rameau in their moſt conſpicuous light, but even, in particular reſpects, to render them more ſimple.—For inſtance, beſides the fundamental experiment mentioned above, that celebrated muſician, to render the explication of ſome particular phenomena in muſic more acceſſible, had recourſe to another experiment; I mean that which ſhows that a ſonorous body, ſtruck and put in vibration, forces its 12th and 17th major in deſcending to divide themſelves and produce a tremulous ſound. The chief uſe which M. Rameau made of this 2d experiment was to inveſtigate the origin of the minor mode, and to give a ſatisfactory account of ſome other rules eſtabliſhed in harmony; and with reſpect to this in our firſt edition we have implicitly followed him; in this we have found means to deduce from the firſt experiment alone the formation of the minor mode, and beſides, to diſengage that formation from all the queſtions which were foreign to it.

(113.) It is the ſame caſe with ſome other points as the origin of the chord of the ſub-dominant, (ſee SUB-DOMINANT,) and the explication of the ſeſeventh in ſome peculiar reſpects, upon which it is imagined that we have ſimplified, and perhaps in ſome meaſure extended, the principles of the celebrated artiſt.

(114.) We have likewiſe baniſhed from this edition every conſideration of geometrical, arithmetical, and harmonical proportions and progreſſions, which authors have endeavoured to find in the mixture and protraction of tones produced by a ſonorous body; perſuaded that M. Rameau was under no neceſſity of paying the leaſt regard to theſe proportions, which we believe to be not only ly uſeleſs, but even fallacious, when applied to the theory of muſic. In ſhort, though the relations produced by the octave, the fifth, and the third, &c. were quite different from what they are; though in theſe chords we ſhould neither remark any progreſſion nor any law; though they ſhould be incommenſurable one with another; the protracted tone of a ſonorous body, and the multiplied ſounds which reſult from it, are a ſufficient foundation for the whole harmonic ſyſtem.

(115.) But though this work is intended to explain the theory of muſic, and to reduce it to a ſyſtem more complete and more luminous than has hitherto been done, we ought to caution thoſe who ſhall read this treatiſe, that they may be careful not to deceive themſelves, either by miſapprehending the nature of our object, or the end which our endeavours purſue. We muſt not here look for that ſtriking evidence, which is peculiar to geometrical diſcoveries alone, and which can be ſo rarely obtained in theſe mixed diſquiſitions, where natural philoſophy is likewiſe concerned; into the theory of muſical phenomena there muſt always enter a particular kind of metaphyſics, which theſe phenomena implicitly take for granted, and which brings along with it its natural obſcurity. In this ſubject, therefore, it would be abſurd to expect what is called *demonſtration:* it is an atchievement of no ſmall importance, to have reduced the principal facts to a ſyſtem conſiſtent with itſelf, and firmly connected in its parts; to have deduced them from one ſimple experiment; and to have eſtabliſhed upon this foundation the moſt common and eſſential rules of the muſical art. But if here it be improper to require that intimate and unalterable conviction, which can only be produced by the ſtrongeſt evidence, we doubt whether it is poſſible to elucidate this ſubject more ſtrongly.

(116.) After this declaration, one ſhould not be aſtoniſhed, that, among the facts deduced from our fundamental experiment, there ſhould be ſome which appear immediately to depend upon that experiment, and others which are deduced from it in a way leſs direct. In diſquiſitions of natural philoſophy, where we are ſcarcely allowed to uſe any other arguments, except ſuch as ariſe from analogy or congruity, the analogy ſhould be ſometimes more ſometimes leſs ſenſible: and we will venture to aſſert, that ſuch a mind muſt be very improper for philoſophy, which cannot recogniſe and diſtinguiſh this gradation and the different circumſtances on which it proceeds. It is not even ſurpriſing, that in a ſubject where analogy alone can take place, this conductreſs ſhould deſert us all at once in our attempts to account for certain phenomena. This likewiſe happens in the ſubject which we now treat: nor do we conceal the fact, however mortifying, that there are certain points (though there number be but ſmall) which appear ſtill in ſome degree unaccountable from our principle. Such, for inſtance, is the procedure of the diatonic ſcale in deſcending; the formation of the chord commonly termed the *ſixth redundant* (ſee **Redundant**), or *ſuperfluous*, and ſome other facts of leſs importance, for which as yet we can ſcarcely offer any ſatisfactory account except from experience alone.

(117.) Thus, though the greateſt number of the phenomena in the art of muſic appear to be deducible, in a ſimple and eaſy manner from the protracted tone of ſonorous bodies, one ought not perhaps to affirm, as yet, that this mixed and protracted tone is *demonſtratively* the only original principle of harmony.* But in the mean time it would not be leſs unjuſt to reject this principle, becauſe certain phenomena appear to be deduced from it with leſs ſucceſs than others. It is only neceſſary to conclude from this, that we ought not to attempt the reduction of the whole ſcience of muſic to one principle; which, however, is the natural effect of an impatience frequent even among philoſophers, which induces them to take a part for the whole, and to judge of objects in their full extent, by the greateſt number of their appearances.

(118.) In thoſe ſciences which are called *phyſico-mathematical* (and among this number the ſcience of ſounds may be placed), there are ſome phenomena which depend only upon one ſingle principle and one ſingle experiment; there are others which neceſſarily ſuppoſe a greater number both of experiments and principles, whoſe combination is indiſpenſable in forming an exact and complete ſyſtem; and muſic perhaps is in this laſt caſe. For this reaſon, whilſt we beſtow on M. Rameau all due praiſe, we ſhould ſtimulate the learned to carry them ſtill to higher degrees of perfection. Whatever the reſult of their efforts may be, M. Rameau will ſtill have the advantage of being the firſt who rendered muſic a ſcience worthy of philoſophical attention; made its practice more ſimple and eaſy; and taught muſicians to employ on this ſubject the light of reaſon and analogy.

(119.) We would the more willingly perſuade thoſe who are ſkilled in theory and eminent in practice to extend and improve their views, becauſe many amonſt them have already made laudable attempts, and have even been in ſome meaſure ſucceſsful in diffuſing new light through the theory of this enchanting art. It was with this view that the celebrated **Tartini** preſented us in 1754 with a treatiſe of harmony, founded on a principle different from that of M. Rameau. This principle is the reſult of a moſt beautiful experiment.† If at once two different ſounds are produced from two inſtruments of the ſame kind, theſe two ſounds generate a third, different from both the others (Se e *To* GENERATE, § 2.) They have inſerted in *Encyclopédie*, under the article FUNDAMENTAL, letail of this experiment according to M. Tar- i; and we owe to the public an information of iich in compoſing this article we were ignorant: . Rameau, a member of the Royal Society at ontpelier, had preſented to that ſociety in 53, before the work of M. Tartini had appear-, a memorial printed the ſame year, and where ay be found the ſame experiment diſplayed at ll length. In relating this fact, it is by no eans our intention to detract in any degree from e reputation of M. Tartini; we are perſuaded at he owes this diſcovery to his own reſearches one: but we think ourſelves obliged in honour give public teſtimony in favour of him who as the firſt in exhibiting this diſcovery.

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* *The* demonſtration *of the principles of harmony by M. Rameau was not thus entitled in the expoſition which he preſented in* 1749 *to the Academy of Sciences, and which that Society very highly approved; the title was,* "*A* memorial, *in which are explained the foundations of a* ſyſtem *of muſic theoretical and practical.*" *Dr* **Blacklock** *juſtly remarks, that* ſyſtem *is the only name in reality which is expreſſive of its nature, as M. Rameau himſelf acknowledges, that upon particular points, he is under a neceſſity of having recourſe to* analogy *and* aptitude; *which exclude every idea of* demonſtration.

† *On this ſubject the reader may conſult* Smith's Harmonics, Malcolm's Diſſertation, *and* Pleydell's Treatiſe on Muſic; *alſo a treatiſe called* Principles and Power of Harmony; *Lond.* 1771.

(120.) In exhorting philoſophers and artiſts to ake new attempts for the advancement of the eory of muſic, we ought to let them know the nger of miſtaking what is the real end of their ſearches. Experience is the only foundation on which they can proceed; it is alone by the ſervation of facts, by bringing them together in e view, by ſhowing their dependency upon one, poſſible, or at leaſt upon a very ſmall number primary facts, that they can reach the end, to hich they aſpire, of eſtabliſhing an exact theory muſic, where nothing is wanting, nothing ob- ure, but every thing diſcovered in its full ex- nt, and in its proper light. The philoſopher, ho is properly enlightened, will put little value pon the attempts of natural philoſophers, to ex- lain the multiplicity of tones produced by ſono- us bodies; by pretending that there are particles the air, which, by their different degrees of agnitude and texture, being naturally ſuſcepti- le of different oſcillations, produce the multipli- ty of ſound in queſtion. Though it ſhould even granted, that there is ſuch a diverſity of ten- on in theſe aerial particles, how ſhould this di- rſity prevent them from being all confounded their vibrations by the motions of a ſonorous dy? What then ſhould be the reſult, when the brations arrive at our ears, but a confuſed and appreciable noiſe, where one could not diſtin- niſh any particular ſound?

(121.) If philoſophical muſicians ought not to ſe their time in ſearching for mechanical expli- tions of the phenomena in muſic, much leſs is their province to exhauſt their powers in vain tempts to riſe above their ſphere, into a region ll more remote from the proſpect of their facul- s, and to loſe themſelves in a labyrinth of me- hyſical ſpeculations upon the cauſes of that aſure which we feel from harmony. In vain uld they accumulate hypotheſis on hypotheſis, find a reaſon why ſome chords ſhould pleaſe us re than others. The futility of theſe ſuppoſiti- s accounts muſt be obvious to every one who the leaſt penetration. Some aſcribe the different rees of pleaſure which we feel from chords, the more or leſs frequent coincidence of vibra- s; others to the relations which theſe vibra- s have among themſelves as they are more or ſimple. But why ſhould this coincidence of rations, and the accident of beginning fre- ently at the ſame time, prove ſo great a ſource of pleaſure? And though one ſhould grant it, would it not follow, that the ſame chord ſhould ſucceſſively and rapidly affect us with contrary ſenſations, ſince the vibrations are alternately coincident and diſcrepant? On the other hand, how ſhould the ear be ſo ſenſible to the ſimplicity of relations, whilſt for the moſt part theſe relations are entirely unknown to him whoſe organs are, notwithſtanding, ſenſibly affected with the charms of agreeable muſic? Why ſhould certain chords which are extremely pleaſing in themſelves, ſuch as the fifth, loſe almoſt nothing of the pleaſure which they give us, when they are altered, and of conſequence when the ſimplicity of their relations are deſtroyed; whilſt other chords, which are likewiſe extremely agreeable, ſuch as the third, become harſh almoſt by the ſmalleſt alteration; nay, whilſt the moſt perfect and the moſt agreeable of all chords, I mean the octave, cannot ſuffer the moſt inconſiderable change? Let us in ſincerity confeſs our ignorance concerning the genuine cauſes of theſe effects. The metaphyſical conjectures concerning the acouſtic organs are probably in the ſame predicament with thoſe which are formed concerning the organs of viſion, in which philoſophers have made ſuch inconſiderable progreſs, and in all likelihood will not be ſurpaſſed by their ſucceſſors.

(122.) Since the theory of muſic, even within its limits, implies queſtions from which every wiſe muſician will abſtain, with much greater reaſon ſhould they avoid endeavours to inveſtigate between muſic and the other ſciences chimerical relations which have no foundation in nature. The ſingular opinions advanced upon this ſubject, by ſome even of the moſt celebrated muſicians, deſerve not to be refuted; and ought only to be regarded as a new proof, how far men of genius may deviate from truth and taſte, when they engage in ſubjects of which they are ignorant.

(123.) The rules which we have attempted to eſtabliſh, concerning the tract which every one ought to purſue in the theory of the muſical art, may ſhow our readers the end which we have endeavoured to attain in this work. We have nothing to do here with the mechanical principles of protracted and harmonic tones, produced by ſonorous bodies, which till now have been explored in vain; we have ſtill leſs to do with the metaphyſical cauſes of thoſe pleaſing ſenſations which are impreſſed on the mind by harmony; which are ſtill leſs diſcovered, and, according to all appearances, will remain in perpetual obſcurity. We are alone concerned to ſhow how the moſt eſſential laws of harmony may be deduced from one ſingle experiment; and for which preceding artiſts have been groping in the dark.

(124.) To render this work as generally uſeful as poſſible, I have endeavoured to adapt it to the capacity even of thoſe who are uninſtructed in muſic. To accompliſh this deſign, it appeared neceſſary to purſue the following plan.

(125.) To begin with a ſhort introduction, in which are defined the technical terms moſt frequently uſed in this art. Afterwards to enter into the theory of harmony, which is explained according to M. Rameau, with all poſſible perſpicuity. This is the ſubject of the *Firſt Part;*

which, as well as the introduction, preſuppoſes no other knowledge of muſic than that of the names and powers of the ſyllables, *ut*, *re*, *mi*, *fa*, *ſol*, *la*, *ſi*, or C, D, E, F, G, A, B.*

(126.) The theory of harmony requires ſome arithmetical calculations, which are neceſſary for comparing ſounds one with another. Theſe calculations are very ſhort, extremely ſimple, and conducted in ſuch a manner as to be ſenſibly comprehended by every one; they demand no operation but what is clearly explained, and which every ſchool-boy with the ſlighteſt attention may perform.

(127.) Theſe calculations I have not endeavoured to multiply; I could even have wiſhed to ſuppreſs them, if it had been poſſible: ſo much did it appear to me that my readers might be miſled upon this ſubject, and might either believe themſelves, or ſuſpect me of believing, all this arithmetic neceſſary to form an artiſt. Calculations may indeed facilitate the underſtanding of certain points in the theory, as of the relations between the different notes in the gammut and of the temperament; but the calculations neceſſary for treating of theſe points are ſo ſimple, and of ſo little importance, that nothing can require a leſs minute or oſtentatious diſplay. Do not let us imitate thoſe muſicians who, believing themſelves *geometers*, or thoſe geometers who, believing themſelves *muſicians*, fill their writings with figures upon figures. The propenſity of adorning their works, with a falſe air of ſcience, can only impoſe upon credulity and ignorance, and ſerve no other purpoſe but to render their treatiſes more obſcure and leſs inſtructive. In the character of a geometer, I think I have ſome right to proteſt here againſt ſuch ridiculous abuſe of geometry in muſic.

(128.) In this ſubject the foundations of thoſe calculations are in ſome manner hypothetical, and can never ariſe to a degree of certainty above hypotheſis. The relation of the octave as 1 to 2, that of the fifth as 2 to 3, that of the third major as 4 to 5, &c. are not perhaps the genuine relations eſtabliſhed in nature; but only relations which approach them, and ſuch as experience can diſcover. But happily theſe approximated relations are ſufficient, though they ſhould not be exactly agreeable to truth, for giving a ſatisfactory account of thoſe phenomena which depend on the relations of ſound; as in the difference between the notes in the gammut, of the alterations neceſſary in the fifth and third, of the different manner in which inſtruments are tuned, and other facts of the ſame kind. If the relations of the octave, of the fifth, and of the third, are not exactly ſuch as we have ſuppoſed them, at leaſt no experiments can prove that they are not ſo; and ſince theſe relations are ſignified by a ſimple expreſſion, ſince they are beſides ſufficient for all the purpoſes of theory, it would not only be uſeleſs, but even contrary to ſound philoſophy, ſhould any one incline to invent other relations, to form the baſis of any ſyſtem of muſic leſs eaſy and ſimple than that which we have delineated in this treatiſe.

(129.) The IId part contains the moſt eſſential rules of compoſition, or in other words the *practice* of harmony. (See Composition, § 6, 7.) Theſe rules are founded on the principles laid down in the firſt part; yet thoſe who wiſh to underſtand no more than is neceſſary for practice, without exploring the reaſons why ſuch practical rules are neceſſary, may limit the objects of their ſtudy to the *introduction* and the 2d part. They who have read the 1ſt part, will find at every rule contained in the 2d, a reference to that paſſage in the firſt where the reaſons for eſtabliſhing that rule are given.

(130.) This 2d part preſuppoſes, no more than the firſt, any habit of ſinging, nor even any knowledge of muſic; it only requires that one ſhould know, not even the rules and manner of intonation, but merely the poſition of the notes in the cleff *fa* or F on the fourth line, and that of *ſol* or G upon the ſecond: and even this knowledge may be acquired from the work itſelf; for in the beginning of the 2d part I explain the poſitions of the cleffs and of the notes. Nothing elſe is neceſſary but to render it a little familiar to our memory.

(131.) It would be wrong to expect here all the rules of compoſition, and eſpecially thoſe which direct the compoſition of muſic in ſeveral parts, and which, being leſs ſevere and indiſpenſable, may be chiefly acquired by practice, by ſtudying the moſt approved models, by the aſſiſtance of a proper maſter, but above all by the cultivation of the ear and of the taſte. This treatiſe is properly but the rudiments of muſic, intended for explaining to beginners the fundamental principles, not the practical detail of compoſition. Thoſe who wiſh to enter more deeply into this detail, will either find it in Mr Rameau's treatiſe of harmony, or in the code of muſic which he publiſhed more lately†, or laſtly in the explication of the theory and practice of muſic by M. Bethizi: (Paris, 1754;) This laſt book appears to me clear and methodical. One may look upon it as a ſupplement to my own performance. I do this juſtice to the author with ſo much more cheerfulneſs, as he is entirely unknown to me, and as his animadverſions upon my work appear to me leſs ſevere than it deſerved. (See *Journeaux Economiques*, 1752.)

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* *The names of the ſeven notes uſed by the French are here retained, as, if properly aſſociated with the ſounds which they denominate, they tend to impreſs theſe ſounds more diſtinctly on the memory of the ſcholar than the letters* C, D, E, F, G, A, B, *from which characters, except in ſol-fa ing, the notes in the diatonic ſeries are generally named in Britain.* (For their origin, ſee Aretin, N° 2.) *Amongſt us, in the progreſs of intonation, the ſyllables* ut, re, *and* ſi, *have been omitted, by which means the teachers of church-muſic have rendered it ſtill more difficult to expreſs by the four remaining denominations the various changes of the ſemitones in the octave. As theſe artificially change their places, the ſeven ſyllables above mentioned alſo diverſify their powers, and are variouſly arranged according to the intervals in which the notes they are intended to ſignify may be placed. For theſe variations, ſee Rouſſeau's* Muſical Dictionary, *article* Gamme: *and the* Eſſay towards a Rational Syſtem of Muſic, *by John Holden, Part I. chap.* 1.

† *From my general recommendation of this code, I except the reflections on the principles of ſound at the end, which I ſhould not adviſe any one to read.*

(132.) To compoſe muſic in a proper taſte, it is not enough to have familiarized with much application the principles explained in this treatiſe. Here can only be learned the mechaniſm of the art; it is the province of nature alone to accompliſh the reſt. Without her aſſiſtance, it is no more poſſible to compoſe agreeable muſic by having read theſe elements, than to write verſes in a proper manner with the Dictionary of Richelet. In one word, it is the elements of muſic alone, and not the principles of genius, that the reader may expect to find in this treatiſe.

DEFINITIONS OF SEVERAL TECHNICAL TERMS.

I. *Of* Melody, Chord, Harmony, *and* Interval.

1. Melody is a ſeries of ſounds which ſucceed one to another in a manner agreeable to the ear.

2. A chord is that which ariſes from the mixture of ſeveral ſounds heard at the ſame time; and Harmony is properly a ſeries of chords, which, in their ſucceſſion one to another, delights the ear. A ſingle chord is likewiſe ſometimes called *harmony*, to ſignify the coaleſcence of ſounds which that chord creates, and the ſenſation produced in the ear by that coaleſcence. We ſhall occaſionally uſe the word *harmony* in this laſt ſenſe, but ſo as never to leave our meaning ambiguous.

3. In melody and harmony, the diſtance between one ſound and another is called an *interval*; and this is increaſed or diminiſhed as the ſounds between which it intervenes are higher or lower one than the other. (See Interval, § III, 1-3.)

4. That we may learn to diſtinguiſh the intervals, and the manner of perceiving them, let us take the ordinary ſcale
ut, re, mi, fa, ſol, la, ſi, UT,
C, D, E, F, G, A, B, C,
which every perſon, whoſe ear or voice is not extremely falſe, naturally modulates. Theſe are the obſervations which will occur to us in ſinging this gammut. The ſound *re* is higher or ſharper than the ſound *ut*, the ſound *mi*, higher than the ſound *re*, the ſound *fa* higher than the ſound *mi*; &c. and ſo through the whole octave; ſo that the interval or the diſtance from the ſound *ut* to the ſound *re*, is leſs than the interval or diſtance between the ſound *ut* and the ſound *mi*, the interval from *ut* to *mi* is leſs than that between *ut* and *fa*, &c. and, in ſhort, that the interval from the firſt to the ſecond *ut* is the greateſt of all.—To diſtinguiſh the firſt from the ſecond *ut*, I have marked the laſt with capital letters.

5. In general, the interval between two ſounds is proportionably greater, as one of theſe ſounds is higher or lower with relation to the other: but it is neceſſary to obſerve, that two ſounds may be equally high or low, though unequal in their force. The ſtring of a violin touched with a bow produces a ſound equally high, whether ſtrongly or faintly ſtruck; the ſound will only have a greater or leſſer degree of ſtrength. It is the ſame with vocal modulation; let any one form a ſound by gradually impelling or ſwelling the voice, the ſound may be perceived to increaſe in its energy, whilſt it continues always equally low or equally high.

6. We muſt likewiſe obſerve concerning the ſcale, that the intervals between *ut* and *re*, between *re* and *mi*, between *fa* and *ſol*, between *ſol* and *la*, between *la* and *ſi*, are equal, or at leaſt nearly equal; and that the intervals between *mi* and *fa*, and between *ſi* and *ut*, are likewiſe equal among themſelves, but conſiſt almoſt only of half the former. This fact is known and recognized by every one.

7. For this reaſon they have called the interval from *mi* to *fa*, and from *ſi* to *ut*, a ſemitone; whereas thoſe between *ut* and *re*, *re* and *mi*, *fa* and *ſol*, *ſol* and *la*, *la* and *ſi*, are tones. The *tone* is likewiſe called a *ſecond major* (ſee *Pl.* CCXXXI. N° 2. *Fig.* A.) and the *ſemitone* a *ſecond minor*. (See Interval, § III. 1—3.)

8. To deſcend or riſe diatonically, is to deſcend or riſe from one ſound to another by the interval of a tone or of a ſemitone, or, in general, by ſeconds, whether major or minor; as from *re* to *ut*, or from *ut* to *re*, from *fa* to *mi*, or from *mi* to *fa*.

II. *The* Terms *by which the* different Intervals *of the* Gamut *are* denominated.

9. An interval compoſed of a tone and a ſemitone, as from *mi* to *ſol*, from *la* to *ut*, or from *re* to *fa*, is called a *third minor*.—An interval compoſed of two full tones, as from *ut* to *mi*, from *fa* to *la*, or from *ſol* to *ſi*, is called a *third major*.—An interval compoſed of two tones and a ſemitone, as from *ut* to *fa*, or from *ſol* to *ut*, is called a *fourth*.—An interval conſiſting of three full tones, as from *fa* to *ſi*, is called a *triton* or *fourth redundant*.—An interval conſiſting of three tones and a ſemitone, as from *ut* to *ſol*, from *fa* to *ut*—from *re* to *la*, or from *mi* to *ſi*, &c. is called a *fifth*.—An interval compoſed of three tones and two ſemitones, as from *mi* to *ut*, is called a *ſixth minor*.—An interval compoſed of four tones and a ſemitone, as from *ut* to *la*, is called a *ſixth major*.—An interval conſiſting of four tones and two ſemitones, as from *re* to *ut*, is called a *ſeventh minor*.—An interval compoſed of five tones and a ſemitone, as from *ut* to *ſi*, is called a *ſeventh major*.—And, in ſhort, an interval conſiſting of five tones and two ſemitones, as from *ut* to *UT*, is called an *octave*. A great number of the intervals now mentioned, are ſtill ſignified by other names, as may be ſeen in the beginning of the ſecond part; but thoſe now given are the moſt common, and the only terms which our preſent purpoſe demands.

10. Two ſounds equally high, or equally low, however unequal in their force, are ſaid to be in *uniſon* one with the other.

11. If two ſounds form between them any interval, whatever it be, we ſay, that the higheſt when aſcending is in that interval with relation to the loweſt; and when deſcending, we pronounce the loweſt in the ſame interval with relation to the higheſt. Thus in the third minor *mi, ſol*, where *mi* is the loweſt and *ſol* the higheſt ſound, *ſol* is a third minor from *mi aſcending*, and *mi* is a third minor from *ſol* in *deſcending*.

12. In the ſame manner, if, ſpeaking of two ſonorous bodies, we ſhould ſay, that the one is a fifth above the other in *aſcending*; this infers that the ſound given by the one is at the diſtance of a fifth *aſcending* from the ſound given by the other.

III. *Of* Intervals greater *than the* Octave.

13. If, after having ſung the ſcale *ut*, *re*, *mi*, *fa*, *ſol*, *la*, *ſi*, *UT*, one would carry this ſcale ſtill farther in aſcent, it would be diſcovered without difficulty that a new ſcale would be formed, UT, RE, MI, FA, &c. entirely ſimilar to the former, and of which the ſounds will be an octave aſcending, each to its correſponding note in the former ſcale; thus RE, the ſecond note of the ſecond ſcale, will be an octave in aſcent to the *re* of the firſt ſcale; in the ſame manner MI ſhall be an octave to *mi*, &c. and ſo of the reſt. See *Fig*. B. *Plate* CCXXXI. N° 2.

14. As there are nine notes from the firſt *ut* to the ſecond RE, the interval between theſe two ſounds is called a *ninth*, and this ninth is compoſed of ſix full tones and two ſemitones. For the ſame reaſon the interval from *ut* to FA is called an *eleventh*, and the interval between *ut* and SOL, a *twelfth*, &c. It is plain that the *ninth* is the octave of the *ſecond*, the *eleventh* of the *fourth*, and the *twelfth* of the *fifth*, &c. The octave above the octave of any ſound is called a *double octave*; (See Double Octave, and Interval) the octave of the double octave is called a *triple octave*, and ſo of the reſt. The double octave is likewiſe called a *fifteenth*; and for the ſame reaſon the double octave of the third is called a *ſeventeenth*, the double octave of the fifth a *nineteenth*, &c.

IV. *Of* Sharps *and* Flats.

15. It is plain, that one may imagine the five tones which enter into the ſcale, as divided each into two ſemitones; thus one may advance from *ut* to *re*, forming in his progreſs an intermediate ſound, (ſee Interval, § III.) which ſhall be higher by a ſemitone than *ut*, and lower in the ſame degree than *re*. A ſound in the ſcale is called *ſharp*, when it is raiſed by a ſemitone; and it is marked with this character ※; thus *ut*※ ſignifies *ut ſharp*, that is to ſay *ut* raiſed by a ſemitone above its pitch in the natural ſcale. A ſound in the ſcale depreſſed by a ſemitone is called *flat*, and is marked thus, ♭: thus *la*♭ ſignifies *la flat*, or *la* depreſſed by a ſemitone.

V. *Of* Consonances *and* Dissonances.

16. A chord compoſed of ſounds whoſe union or coaleſcence pleaſes the ear is called a *conſonance*; (See Chord, § II, III.) and the ſounds which form this chord are ſaid to be conſonant one with relation to the other. The reaſon of this denomination is, that a chord is found more perfect, as the ſounds which form it coaleſce more cloſely among themſelves.

17. The octave of a ſound is the moſt perfect of conſonances of which that ſound is ſuſceptible; then the fifth, afterwards the third, &c. This is a fact founded on experiment.

18. A number of ſounds ſimultaneouſly produced, whoſe union is diſpleaſing to the ear, is called a dissonance, and the ſounds which form it are ſaid to be diſſonant one with relation to the other. The ſecond, the triton, and the ſeventh of a ſound, are diſſonants with relation to it. (See Discord, § 2.) Thus the ſounds *ut re*, *ut ſi*, or *fa ſi*, &c. ſimultaneouſly heard, form a diſſonance. The reaſon which renders diſſonance diſagreeable, is, that the ſounds which compoſe it, ſeem by no means coaleſcent to the ear, and are heard each of them by itſelf as diſtinct ſounds, though produced at the ſame time.

PART I.

THEORY of HARMONY.

Chap. I. Preliminary *and* Fundamental Experiments.

19. Exper. I. WHEN a ſonorous body is ſtruck till it gives a ſound, the ear, beſides the principal ſound and its octave, perceives two other ſounds very high, of which one is the twelfth above the principal ſound, that is to ſay, the octave to the fifth of that ſound; and the other is the ſeventeenth major above the ſame ſound, that is to ſay, the double octave of its third major.

20. This experiment is peculiarly ſenſible upon the thick ſtrings of the violoncello, of which, the ſound being extremely low, gives to an ear, though not very much practiſed, an opportunity of diſtinguiſhing with ſufficient eaſe and clearneſs the 12th and 17th now in queſtion.

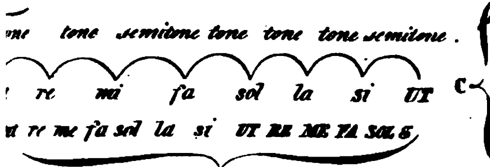
21. The principal ſound is called the *generator*, (See Generator, § 2.) and the two other ſounds which it produces, and with which it is accompanied, are, incluſive of its octave, called its *harmonics*. See Harmonics, § 2.

22. Exp. II. There is no perſon inſenſible of the reſemblance which ſubſiſts between any ſound and its octave, whether above or below. Theſe two ſounds, when heard together, almoſt entirely coaleſce in the organ of ſenſation. We may beſides be convinced (by two facts which are extremely ſimple), of the facility with which one of theſe ſounds may be taken for the other. Let it be ſuppoſed that any perſon has an inclination to ſing a tune, and having at firſt begun this air upon a pitch too high or too low for his voice, ſo that he is obliged, leſt he ſhould ſtrain himſelf too much, to ſing the tune in queſtion on a key higher or lower than the firſt, I affirm, that, without being initiated in the art of muſic, he will naturally take his new key in the octave below or the octave above the firſt; and that, in order to take this key in any other interval except the octave, he will find it neceſſary to exert a ſenſible degree of attention. This is a fact of which we may eaſily be perſuaded by experience. Let any perſon ſing a tune in our preſence, and let it be ſung in a tone too high or too low for our voice, if we wiſh to join in ſinging this air, we naturally take the octave below or above, and frequently in taking this octave, we imagine it to be the uniſon.

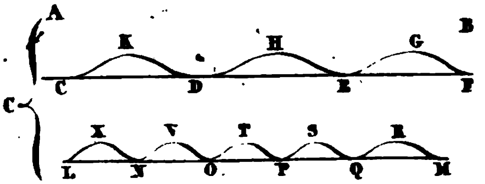
Chap. II. *The* Origin *of the* Modes, Major *and* Minor; *of the moſt* natural Modulation, *and the moſt* perfect Harmony.

23. To render our ideas ſtill more preciſe and permanent, we ſhall call the tone produced by the ſonorous body *ut*: it is evident, by the firſt experiment, that this ſound is always attended by its 12th and 17th major; that is to ſay, with the octave of *ſol*, and the double octave of *mi*.

24. This octave of *ſol*, then, and this double octave of *me*, produces the moſt perfect chord which can be joined with *ut*, ſince that chord is the work and choice of nature.


tone semitone tone tone tone semitone.
re mi fa sol la si UT
re me fa sol la si UT RE ME FA SOL &

Scale first. *Scale second.*



The Chromatic Species.

The diatonic Scale of the Greeks.

Si Ut Re Mi Fa Sol La

Sol Ut Sol Ut Fa Ut Fa

The Fundamental Bass.

K

Scale.

Sol Sol &c.

Ut Mi Sol x

The Fundamental Bass.

Ut RE MI Fa Sol Sol La Si Ut

Ut Sol Ut Fa Ut Sol Re Sol Ut

The Fundamental Bass.

L

Scale

Ut Mi Si x

Ut Mi Sol x

The Fundamental Bass.

UT, UTx, re, rex mi, mix, fax, SOL, solx LA, lax si six, ut, utx, RE, REx, MI, MIx.

Scale first. *Scale second.*

The first Scale of the minor mode.

Sol La Si Ut Re Mi Fa

Third minor | Third minor | Third minor

Mi La Mi La Re La Re

The Fundamental Bass.

N

Scale.

Mi♭ Mi Mi Mi Mi

Ut Ut La Ut Ut

The Fundamental Bass.

The second Scale of the minor mode.

L

La Si Ut Re Mi mi fax Solx La

La Mi La Re La Mi Si Mi La

The Fundamental Bass.

M

Scale.

Fa Mi Mi Re

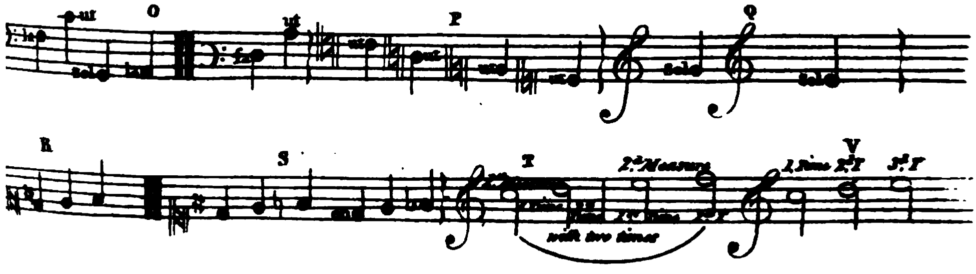
Fa Ut Mi Si

The Fundamental Bass.

Scale.

Ut Re Mi Fa Sol La Si Ut

Ut Sol Ut Fa Ut Re Sol Ut



[illegible]

25. For the ſame reaſon, the modulation formed by *ut* with the octave of *ſol* and the double octave of *mi*, ſung one after the other, would likewiſe be the moſt ſimple and natural of all modulations which do not deſcend or aſcend directly in the diatonic order, if our voices had ſufficient compaſs to form intervals ſo great without difficulty: but the eaſe and freedom with which we can ſubſtitute its octave to any ſound, when it is more convenient for the voice, afford us the means of repreſenting this modulation.

26. On this account, after having ſung the tone *ut*, we naturally modulate the third *mi*, and the fifth *ſol*, inſtead of the double octave of *mi*, and the octave of *ſol*: whence we form, by joining the octave of the ſound *ut*, this modulation, *ut*, *mi*, *ſol*, *ut*, which in effect is the ſimpleſt and eaſieſt of them all; and which likewiſe has its origin even in the protracted and compounded tones produced by a ſonorous body.

27. The modulation *ut*, *mi*, *ſol*, *ut*, in which the chord *ut*, *mi*, is a third major, conſtitutes that kind of harmony or melody which we call the *mode major*; from whence it follows, that this mode reſults from the immediate operation of nature. See INTERVAL, § III; and MODE, § 4.

28. In the new modulation *ut*, *mi*, *ſol*, of which we have now been treating, the ſounds *mi* and *ſol* are ſo proportioned one to the other, that the principal ſound *ut* (art. 19.) cauſes both of them to reſound; but the ſecond tone *mi* does not cauſe *ſol* to reſound, which only forms the interval of a third minor.

29. Let us then imagine, that, inſtead of this ſound *mi*, one ſhould ſubſtitute between the ſounds *ut* and *ſol* another note which (as well as the ſound *ut*) has the power of cauſing *ſol* to reſound, and which is, however, different from the ſound *ut*; the ſound which we explore ought to be ſuch, by art. 19. that it may have for its 17th major *ſol*, or one of the octaves of the *ſol*; of conſequence the ſound which we ſeek ought to be a 17th major below *ſol*, or, what is the ſame thing, a 3d major below the ſame *ſol*. Now the ſound *mi* being a third minor beneath *ſol*, and the 3d major being (art. 9.) greater by a ſemitone than the 3d minor, it follows, that the ſound of which we are in ſearch ſhall be a ſemitone beneath the natural *mi*, and of conſequence *mi*♭.

30. This new arrangement, *ut*, *mi*♭, *ſol*, in which the ſounds *ut* and *mi*♭ have both the power of cauſing *ſol* to reſound, though *ut* does not cauſe *mi*♭ to reſound, is not indeed equally perfect with the firſt arrangement, *ut*, *mi*, *ſol*; becauſe in this the two ſounds *mi* and *ſol* are both the one and the other generated by the principal ſound *ut*; whereas, in the other, the ſound *mi*♭ is not generated by the ſound *ut*; but this arrangement *ut*, *mi*♭, *ſol*, is likewiſe dictated by nature (art. 19.), though leſs immediately than the former; and accordingly experience evinces, that the ear accommodates itſelf almoſt as well to the latter as to the former.

31. In this modulation or chord *ut*, *mi*♭, *ſol*, *ut*, it is evident that the third from *ut* to *mi*♭, is minor; and ſuch is the origin of that mode which we call *minor*. See INTERVAL, § III; and MODE, § 4.

32. The moſt perfect chords then are, 1. All chords related one to another, as *ut*, *mi*, *ſol*, *ut*, conſiſting of any ſound of its third major, of its fifth, and of its octave. 2. All chords related one to another, as *ut*, *mi*♭, *ſol*, *ut*, conſiſting of any ſound, of its third minor, of its fifth, and of its octave. In effect, theſe two kinds of chords are exhibited by nature; but the firſt more immediately than the ſecond. The firſt are called *perfect chords major*, the ſecond *perfect chords minor*.

CHAP. III. *Of the* SERIES *which the* FIFTH *requires, and of the* LAWS *which it obſerves.*

33. SINCE the ſound *ut* cauſes the ſound *ſol* to be heard, and is itſelf heard in the ſound *fa*, which ſounds *ſol* and *fa* are its two 12ths, we may imagine a modulation compoſed of that ſound *ut* and its two 12ths, or, which is the ſame thing (art. 22.), of its two fifths *fa* and *ſol*, the one below, the other above; which gives the modulation or ſeries of fifths, *fa*, *ut*. *ſol*, which I call the *fundamental baſs of ut* by fifths. We ſhall find it in the ſequel (*Chap.* XVIII.), that there may be ſome fundamental baſſes by thirds, deduced from the two 17ths, of which the one is an attendant of the principal ſound, and of which the other includes that ſound. But we muſt advance ſtep by ſtep, and ſatisfy ourſelves at preſent to conſider immediately the fundamental baſs by fifths.

34. Thus from the ſound *ut*, one may make a tranſition indifferently to the ſound *ſol*, or to the ſound *fa*.

35. One may, for the ſame reaſon, continue this kind of fifths in aſcending, and in deſcending, from *ut*, in this manner: *mi*♭, *ſi*♭, *fa*, *ut*, *ſol*, *re*, *la*, &c. And from this ſeries of fifths one may paſs to any ſound which immediately precedes or follows it.

36. But it is not allowed in the ſame manner to paſs from one ſound to another which is not immediately contiguous to it; for inſtance, from *ut* to *re*, or from *re* to *ut*: for this very ſimple reaſon, that the ſound *re* is not contained in the ſound *ut*, nor the ſound *ut* in that of *re*; and thus theſe ſounds have not any alliance one with the other, which may authoriſe the tranſition from one to the other.

37. And as theſe ſounds *ut* and *re*, by the firſt experiment, naturally bring along with them the perfect chords conſiſting of greater intervals *ut*, *mi*, *ſol*, *ut*, *re*, *fa*✻, *la*, *re*; hence may be deduced this rule, That two perfect chords, eſpecially if they are major, cannot ſucceed one another diatonically in a fundamental baſs; we mean, that in a fundamental baſs two ſounds cannot be diatonically placed in ſucceſſion, each of which, with its harmonics, forms a perfect chord, eſpecially if this perfect chord be major in both.

CHAP. IV. *Of* MODES *in* GENERAL.

38. A MODE, in muſic, is the order of ſounds preſcribed, as well in harmony as melody, by the ſeries of fifths. Thus the three ſounds, *fa*, *ut*, *ſol*, and the harmonics of each of theſe three ſounds, that is to ſay, their thirds major and their fifths, compoſe all the major modes which are proper to *ut*.

39. The ſeries of fifths, then, or the fundamental baſs *fa, ut, ſol*, of which *ut* holds the middle ſpace, may be regarded as repreſenting the mode of *ut*. One may likewiſe take the ſeries of fifths, or fundamental baſs, *ut, ſol, re*, as repreſenting the mode of *ſol*; in the ſame manner *ſi* ♭, *fa, ut*, will repreſent the mode of *fa*. By this we ſee, that the mode of *ſol*, or rather the fundamental baſs of that mode, has two ſounds in common with the fundamental baſs of the mode of *ut*. It is the ſame with the fundamental baſs of the mode *fa*.

40. The mode of *ut (fa, ut, ſol)* is called the *principal mode* with reſpect to the modes of theſe two 5ths, which are called its two *adjuncts*. See ADJUNCT.

41. It is then, in ſome meaſure, indifferent to the ear whether a tranſition be made to the one or to the other of theſe adjuncts, ſince each of them has equally two ſounds in common with the principal mode. Yet the mode of *ſol* ſeems a little more eligible; for *ſol* is heard amongſt the harmonics of *ut*, and of conſequence is implied and ſignified by *ut*; whereas *ut* does not cauſe *fa* to be heard, though *ut* is included in the ſame ſound *fa*. Hence the ear, affected by the mode of *ut*, is a little more prepoſſeſſed for the mode of *ſol* than for that of *fa*. Nothing likewiſe is more frequent, nor more natural, than to paſs from the mode of *ut* to that of *ſol*.

42. For this reaſon, as well as to diſtinguiſh the two fifths one from the other, we call *ſol* the fifth above the generator the DOMINANT ſound, and the fifth *fa* beneath the generator, the SUBDOMINANT. (See theſe articles.)

43. As we have ſeen in the preceding chapter, that, in the ſeries of fifths, we may indifferently paſs from one ſound to that which is contiguous: in the ſame manner, and for the ſame reaſon, one may paſs from the mode of *ſol* to the mode of *re*, after having made a tranſition from the mode of *ut* to the mode of *ſol*, as from the mode of *fa* to the mode of *ſi* ♭. But it is neceſſary to obſerve, that the ear which has been immediately affected with the principal mode feels always a ſtrong propenſity to return to it. Thus the further the mode to which we make a tranſition is removed from the principal mode, the leſs time we ought to dwell upon it; or rather, to ſpeak in the terms of the art, the leſs ought the *phraſe* (ſee PHRASE, § 4.) of that mode to be protracted.

CHAP. V. *Of the* FORMATION *of the* DIATONIC SCALE *as* USED *by the* GREEKS.

44. From this rule, that two ſounds which are contiguous may be placed in immediate ſucceſſion in the ſeries of fifths, *fa, ut, ſol*, it follows, that one may form this modulation, or this fundamental baſs, by fifths, *ſol ut, ſol ut, fa ut, fa*.

45. Each of the ſounds which forms this modulation brings neceſſarily along with itſelf its third major, its fifth, and its octave; (ſee *fig* D.) inſomuch that he who, for inſtance, ſings the note *ſol*, may be reckoned to ſing at the ſame the notes *ſol, ſi, re, ſol*: in the ſame manner the ſound *ut* in the fundamental baſs brings along with it this modulation, *ut, mi, ſol, ut*; and, in ſhort, the ſame ſound *fa* brings along with *fa, la, ut, fa*. This modulation, then, or this fundamental baſs, *ſol, ut, ſol, ut, fa, ut, fa*, gives the following diatonic ſeries, *ſi, ut, re, mi, fa, ſol, la*; which is preciſely the diatonic ſcale of the Greeks. (See *fig*. D.) We are ignorant upon what principles they had formed this ſcale; but it may be ſenſibly perceived, that that ſeries ariſes from the baſs *ſol, ut, ſol, ut, fa, ut, fa*; and that of conſequence this baſs is juſtly called *fundamental*, as being the real primitive modulation, that which conducts the ear, and which it feels to be implied in the diatonic modulation, *ſi, ut, re, mi, fa, ſol, la*.

46. We ſhall be ſtill more convinced of this truth by the following remarks: In the modulation *ſi, ut, re, mi, fa, ſol, la*, the ſounds *re* and *fa* form between themſelves a third minor, which is not ſo perfectly true as that between *mi* and *ſol*. Nevertheleſs, this alteration in the third minor between *re* and *fa* gives the ear no pain, becauſe that *re* and that *fa*, which do not form between themſelves a true third minor, form, each in particular, conſonances perfectly juſt with the ſounds in the fundamental baſs which correſpond with them: for *re* in the ſcale is the true fifth of *ſol*, which anſwers to it in the fundamental baſs; and *fa* in the ſcale is the true octave of *fa*, which anſwers to it in the ſame baſs.

47. If, therefore, theſe ſounds in the ſcale form conſonances perfectly true with the notes which correſpond to them in the fundamental baſs, the ear gives itſelf little trouble to inveſtigate the alterations which there may be in the intervals which theſe ſounds in the ſcale form between themſelves. This is a new proof that the fundamental baſs is the genuine guide of the ear, and the true origin of the diatonic ſcale.

48. This diatonic ſcale includes only ſeven ſounds, and goes no higher than *ſi*, which would be the octave of the firſt; a new ſingularity, for which a reaſon may be given by the principles above eſtabliſhed. In reality, that the ſound *ſi* may ſucceed immediately in the ſcale to the ſound *la*, it is neceſſary that the note *ſol*, which is the only one from whence *ſi* as a harmonic may be deduced, ſhould immediately ſucceed to the ſound *fa*, in the fundamental baſs, which is the only one from whence *la* can be harmonically deduced. Now, the diatonic ſucceſſion from *fa* to *ſol* cannot be admitted in the fundamental baſs, according to what we have remarked (art. 36). The ſounds *la* and *ſi*, then, cannot immediately ſucceed one another in the ſcale: we ſhall ſee in the ſequel why this is not the caſe in the ſeries *ut, re, mi, fa, ſol, la, ſi, UT*, which begins upon *ut*; whereas the ſcale in queſtion here begins upon *ſi*.

49. The Greeks likewiſe, to form an entire octave, added below the firſt *ſi* the note *la*, which they diſtinguiſhed and ſeparated from the reſt of the ſcale, and which, for that reaſon, they called PROSLAMBANOMENE, that is to ſay, a ſtring or note ſubadded to the ſcale, and put before *ſi* to form the entire octave. (See that article).

50. The diatonic ſcale *ſi, ut, re, mi, fa, ſol, la*, is compoſed of two tetrachords, that is to ſay, of two diatonic ſcales, each conſiſting of four ſounds, *ſi, ut, re, mi*, and *mi, fa, ſol, la*. Theſe two tetrachords are exactly ſimilar; for from *mi*

to

o *fa* there is the ſame interval as from *ſi* to *ut*, rom *fa* to *ſol* the ſame as from *ut* to *re*; from *ſol* o *la* the ſame as from *re* to *mi*: this is the reaſon why the Greeks diſtinguiſhed theſe two tetrachords; yet they joined them by the note *mi*, which is common to both, and which gave them he name of *conjunctive tetrachords*.

51. Moreover, the intervals between any two ounds, taken in each tetrachord in particular, re preciſely true: thus, in the firſt tetrachord, he intervals of *ut mi*, and *ſi re*, are thirds, the ne major and the other minor, exactly true, as well as the fourth *ſi mi*; it is the ſame thing with he tetrachord *mi*, *fa*, *ſol*, *la*, ſince this tetrachord s exactly like the former.

52. But the caſe is not the ſame when we compare two ſounds taken each from a different terachord; for we have already ſeen, that the note r in the firſt tetrachord forms with the note *fa* n the ſecond a third minor, which is not true. n like manner, it will be found, that the fifth rom *re* to *la* is not exactly true, which is evident; or the third major from *fa* to *la* is true, and the hird minor from *re* to *fa* is not ſo: now, in order to form a true fifth, a third major and a third minor, which are both exactly true, are neceſſary.

53. Thence it follows, that every conſonance s abſolutely perfect in each tetrachord taken by tſelf; but that there is ſome alteration in paſſing rom one tetrachord to the other. This is a new eaſon for diſtinguiſhing the ſcale into theſe two etrachords.

54. It may be aſcertained by calculation, that n the tetrachord *ſi*, *ut*, *re*, *mi*, the interval, or he tone from *re* to *mi*, is a little leſs than the interval or tone from *ut* to *re*. In the ſame manner, n the ſecond tetrachord *mi*, *fa*, *ſol*, *la*, which is, s we have proved, perfectly ſimilar to the firſt, he note from *ſol* to *la* is a little leſs than the note rom *fa* to *ſol*. It is for this reaſon that they diſtinguiſh two kinds of tones; the greater tone, as rom *ut* to *re*, from *fa* to *ſol*, &c.; and the leſſer, as from *re* to *mi*, from *ſol* to *la*, &c. See Interval, § III, 1—3.

Chap. VI. *Of the* formation *of the* Diatonic Scale *among the* Moderns, *or the* Ordinary Gammut.

55. We have juſt ſhown how the ſcale of the Greeks is formed, *ſi*, *ut*, *re*, *mi*, *fa*, *ſol*, *la*, by means of a fundamental baſs compoſed of three ſounds only, *fa*, *ut*, *ſol*: but to form the ſcale *ut*, *re*, *mi*, *fa*, *ſol*, *la*, *ſi*, *UT*, which we uſe at preſent, we muſt neceſſarily add to the fundamental baſs the note *re*, and form, with theſe four ſounds *fa*, *ut*, *ſol*, *re*, the following fundamental baſs: *ut*, *ſol*, *ut*, *fa*, *ut*, *ſol*, *re*, *ſol*, *ut*; from whence we deduce the modulation or ſcale *ut*, *re*, *mi*, *fa*, *ſol*, *la*, *ſi*, *UT*. In effect, *ut* in the ſcale belongs to the harmony of *ut* which correſponds with it in the baſs; *re*, which is the ſecond note in the gammut, is included in the harmony of *ſol*, the ſecond note of the baſs; *mi*, the third note of the gammut, is a natural harmonic of *ut*, which is the third ſound in the baſs, &c.

56. Thence it follows, that the diatonic ſcale of the Greeks is, at leaſt in ſome reſpects, more ſimple than ours; ſince the ſcale of the Greeks (*chap.* v.) may be formed alone from the mode proper to *ut*; whereas ours is originally and primitively formed, not only from the mode of *ut* (*fa*, *ut*, *ſol*), but likewiſe from the mode of *ſol*, (*ut*, *ſol*, *re*.) It likewiſe appears, that this laſt ſcale conſiſts of two parts; of which the one, *ut*, *re*, *mi*, *fa*, *ſol*, is in the mode of *ut*; and the other, *ſol*, *la*, *ſi*, *ut*, in that of *ſol*.

57. For this reaſon, the note *ſol* is found to be twice repeated in immediate ſucceſſion in this ſcale; once as the fifth of *ut*, which correſponds with it in the fundamental baſs; and again, as the octave of *ſol*, which immediately follows *ut* in the ſame baſs. As to what remains, theſe two conſecutive *ſols* are otherwiſe in perfect uniſon. For this reaſon we are ſatisfied with ſinging only one of them when one modulates the ſcale *ut*, *re*, *mi*, *fa*, *ſol*, *la*, *ſi*, *UT*: but this does not prevent us from employing a pauſe or repoſe, expreſſed or underſtood after the ſound *fa*. There is no perſon who does not perceive this whilſt he himſelf ſings the ſcale.

58. The ſcale of the moderns, then, may be conſidered as conſiſting of two tetrachords, diſjunctive indeed, but perfectly ſimilar one to the other, *ut*, *re*, *mi*, *fa*, and *ſol*, *la*, *ſi*, *ut*, one in the mode of *ut*, the other in that of *ſol*. For what remains, we ſhall ſee in the ſequel by what artifice one may cauſe the ſcale *ut*, *re*, *mi*, *fa*, *ſol*, *la*, *ſi*, *UT*, to be regarded as belonging to the mode of *ut* alone. For this purpoſe it is neceſſary to make ſome changes in the fundamental baſs, which we have already aſſigned: but this ſhall be explained at large in *chap.* xiii.

59. The introduction of the mode proper to *ſol*, in the fundamental baſs, has this happy effect, that the notes *fa*, *ſol*, *la*, *ſi*, may immediately ſucceed each other in aſcending the ſcale, which cannot take place (art. 48.) in the diatonic ſeries of the Greeks, becauſe that ſeries is formed from the mode of *ut* alone. From whence it follows, 1. That we change the mode at every time when we modulate three notes in ſucceſſion. 2. That if theſe three notes are ſung in ſucceſſion in the ſcale *ut*, *re*, *mi*, *fa*, *ſol*, *la*, *ſi*, *UT*, this cannot be done but by the aſſiſtance of a pauſe expreſſed or underſtood after the note *fa*; inſomuch, that the three tones *fa*, *ſol*, *la*, *ſi*, (three only becauſe the note *ſol* which is repeated is not enumerated) are ſuppoſed to belong to two different tetrachords.

60. It ought not then to ſurpriſe us, that we feel ſome difficulty whilſt we aſcend the ſcale in ſinging three tones in ſucceſſion, becauſe this is impracticable without changing the mode; and if one pauſes in the ſame mode, the fourth ſound above the firſt note will never be higher than a ſemitone above that which immediately precedes it; as may be ſeen by *ut*, *re*, *mi*, *fa*, and by *ſol*, *la*, *ſi*, *ut*, where there is no more than a ſemitone between *mi* and *fa* and between *ſi* and *ut*.

61. We may likewiſe obſerve in the ſcale *ut*, *re*, *mi*, *fa*, that the third minor from *re* to *fa* is not true, for the reaſons which have been already given (art. 49.) It is the ſame caſe with the third minor from *la* to *ut*, and with the third major from *fa* to *la*: but each of theſe ſounds form otherwiſe

conſonances perfectly true, with their correſpondent ſounds in the fundamental baſs.

62. The thirds *la ut*, *fa la*, which were true in the former ſcale, are falſe in this; becauſe in the former ſcale *la* was the third of *fa*, and here it is the fifth of *re*, which correſponds with it in the fundamental baſs.

63. Thus it appears, that the ſcale of the Greeks contains fewer conſonances that are altered than ours; and this likewiſe happens from the introduction of the mode of *ſol* into the fundamental baſs. We ſee likewiſe that the value of *la* in the diatonic ſcale, a value which authors have been divided in aſcertaining, ſolely depends upon the fundamental baſs, and that it muſt be different according as the note *la* has *fa* or *re* for its baſs.

CHAP. VII. *Of* TEMPERAMENT.

64. THE alterations which we have obſerved in the intervals between particular ſounds of the diatonic ſcale, naturally lead us to ſpeak of temperament. To give a clear idea of this, and to render the neceſſity of it palpable, let us ſuppoſe that we have before us an inſtrument with keys, a harpſichord, for inſtance, conſiſting of ſeveral octaves or ſcales, of which each includes its twelve ſemitones.—Let us chooſe in that harpſichord on of the ſtrings which will ſound the note UT, and let us tune the ſtring SOL to a perfect fifth with UT in aſcending; let us afterwards tune to a perfect fifth with this SOL the RE which is above it; we ſhall evidently perceive that this RE will be in the ſcale above that from which we ſet out; but it is alſo evident that this RE muſt have in the ſcale a *re* which correſponds with it, and which muſt be tuned a true octave below RE; and between this and SOL there ſhould be the interval of a fifth; ſo that the *re* in the firſt ſcale will be a true fourth below the SOL of the ſame ſcale. We may afterwards tune the note LA of the firſt ſcale to a juſt fifth with this laſt *re;* then the note MI in the higheſt ſcale to a true fifth with this new LA, and of conſequence the *mi* in the firſt ſcale to a true fourth beneath this ſame LA: Having finiſhed this operation, it will be found that the laſt *mi*, thus tuned, will by no means form a juſt third major from the ſound UT; that is to ſay, that it is impoſſible for *mi* to conſtitute at the ſame time the third major of UT and the true fifth of LA; or, what is the ſame thing, the true fourth of LA in deſcending.

65. What is ſtill more, if, after having ſucceſſively and alternately tuned the ſtrings UT, SOL, *re*, LA, *mi*, in perfect fifths and fourths one from the other, we continue to tune ſucceſſively by true fifths and fourths the ſtrings *mi*, *ſi*, *fa*※, *ut*※, *ſol*※, *re*※, *mi*※, *ſi*※; we ſhall find, that, though *ſi*※, being a ſemitone higher than the natural note, ſhould be equivalent to UT natural, it will by no means form a juſt octave to the firſt *ut* in the ſcale, but be conſiderably higher; yet this *ſi*※ upon the harpſichord ought not to be different from the octave above UT; for every *ſi*※ and every UT is the ſame ſound, ſince the octave or the ſcale only conſiſts of twelve ſemitones.

66. From thence it neceſſarily follows, 1. That it is impoſſible that all the octaves and all the fifths ſhould be juſt at the ſame time, particularly in inſtruments which have keys, where no intervals leſs than a ſemitone are admitted. 2. That of conſequence, if the fifths are juſtly tuned, ſome alteration muſt be made in the octaves; now the ſympathy or ſound which ſubſiſts between any note and its octave, does not permit us to make ſuch an alteration; this perfect coaleſcence of ſound is the cauſe why the octave ſhould ſerve as limits to the other intervals, and that all the notes which riſe above or fall below the ordinary ſcale, are no more than replications, *i. e.* repetitions, of all that have gone before them. For this reaſon, if the octave were altered, there could be no longer any fixed point either in harmony or melody. It is then abſolutely neceſſary to tune the *ut* or *ſi*※ in a juſt octave with the firſt: whence it follows, that, in the progreſſion of fifths, or, what is the ſame thing, in the alternate ſeries of fifths and fourths, UT, SOL, *re*, LA, *mi*, *ſi*, *fa*※, *ut*※, *ſol*※, *re*※, *la*※, *mi*※, *ſi*※, it is neceſſary that all the fifths ſhould be altered, or at leaſt ſome of them. Now, ſince there is no reaſon why one ſhould rather be altered than another, it follows, that we ought to alter them all equally. By theſe means, as the alteration is made to influence all the fifths, it will be in each of them almoſt imperceptible; and thus the fifth, which, after the octave, is the moſt perfect of all conſonances, and which we are under the neceſſity of altering, muſt only be altered in the leaſt degree poſſible.

67. It is true, that the thirds will be a little harſh; but as the interval of ſounds which conſtitutes the third, produces a leſs perfect coaleſcence than that of the fifth, it is neceſſary, ſays M. Rameau, to ſacrifice the juſtice of that chord to the perfection of the fifth; for the more perfect a chord is in its own nature, the more diſpleaſing to the ear is any alteration which can be made in it. In the octave the leaſt alteration is inſupportable.

68. This change in the intervals of inſtruments which have, or even which have not, keys, is that which we call *temperament*.

69. It reſults then from all that we have now ſaid, that the theory of temperament may be reduced to this queſtion.—The alternate ſucceſſion of fifths and fourths having been given, UT, SOL, *re*, LA, *mi*, *ſi*, *fa*※, *ut*※, *ſol*※, *re*※, *la*※, *mi*※, *ſi*※, in which *ſi*※, or *ut* is not the true octave of the firſt UT, it is propoſed to alter all the fifths equally, in ſuch a manner that the two *uts* may be in a perfect octave the one to the other.

70. For a ſolution of this queſtion, we muſt begin with turning the two *uts* in a perfect octave the one to the other; in conſequence of which, we will render all the ſemitones which compoſe the octave as equal as poſſible. By theſe means the alteration made in each fifth will be very conſiderable, but equal in all of them.

71. In this, then, the theory of temperament conſiſts: but as it would be difficult in practice to tune a harpſichord or organ by thus rendering all the ſemitones equal, M. Rameau, in his *Generation Harmonique*, has furniſhed us with the following method, to alter all the fifths as equally as poſſible.

72. Take any key of the harpſichord which

you pleaſe; but let it be towards the middle of the inſtrument; for inſtance, UT; then tune the note SOL a fifth above it, at firſt with as much accuracy as poſſible; this you may imperceptibly diminiſh: tune afterwards the fifth to this with equal accuracy, and diminiſh it in the ſame manner; and thus proceed from one fifth to another in aſcent: and as the ear does not appreciate ſo exactly ſounds that are extremely ſharp, it is neceſſary, when by fifths you have riſen to notes extremely high, that you ſhould tune in the moſt perfect manner the octave below the laſt fifth which you had immediately formed; then you may continue always in the ſame manner; till in this proceſs you arrive at the laſt fifth from *mi*※ to *fi*※, which ſhould of themſelves be in tune; that is to ſay, they ought to be in ſuch a ſtate, that *fi*※, the higheſt note of the two which compoſe the fifth, may be identical with the ſound UT, with which you began, or at leaſt the octave of that ſound perfectly juſt: it will be neceſſary then to try if this UT, or its octave, forms a juſt fifth with the laſt ſound *mi*※ or *fa* which has been already tuned. If this be the caſe, we may be certain that the harpſichord is properly tuned. But if this laſt fifth be not true, in this caſe it will be too ſharp, and it is an indication that the other fifths have been too much diminiſhed, or at leaſt ſome of them; or it will be too flat, and conſequently diſcover that they have not been ſufficiently diminiſhed. We muſt then begin and proceed as formerly, till we find the laſt fifth in tune of itſelf and without our immediate interpoſition. (See *Rameau's New Syſtem of Muſic*, ch. xxiv.) By this method all the 12 ſounds which compoſe one of the ſcales ſhall be tuned: nothing is neceſſary but to tune with the greateſt poſſible exactneſs their octaves in the other ſcales, and the harpſichord ſhall be well tuned.

We have given this rule for temperament from M. RAMEAU; and it belongs only to diſintereſted artiſts to judge of it. However this queſtion be determined, and whatever kind of temperament may be received, the alterations which it produces in harmony will be but very ſmall, or not perceptible to the ear, whoſe attention is entirely engroſſed in attuning itſelf with the fundamental baſs, and which ſuffers, without uneaſineſs, theſe alterations, or rather takes no notice of them, becauſe it ſupplies from itſelf what may be wanting to the truth and perfection of the intervals. Simple and daily experiments confirm what we now advance. Liſten to a voice which is accompanied, in ſinging, by different inſtruments; though the temperament of the voice, and the temperament of each of the inſtruments, are all different one from another, yet you will not be in the leaſt affected with the kind of cacophony which ought to reſult from theſe diverſities, becauſe the ear ſuppoſes theſe intervals true of which it does not appreciate differences.—Or ſtrike upon an organ the three keys *mi, ſol, ſi*, you will hear nothing but the minor perfect chord; though *mi*, by the conſtruction of that inſtrument, muſt cauſe *ſol*※ likewiſe to be heard; though *ſol* ſhould have the ſame effect upon *re*, and *ſi* upon *fa*※; inſomuch, that the ear is at once affected with all theſe ſounds, *re, mi, fa*※, *ſol, ſol*※, *ſi*: how many diſſonances received at the ſame time, and what a jarring multitude of diſcordant ſenſations would reſult from thence to the ear, if the perfect chord with which it is preoccupied had not power entirely to abſtract its attention from ſuch ſounds as might offend!

CHAP. VIII. *Of* REPOSES,† *or* CADENCES.

73. IN a fundamental baſs whoſe procedure is by fifths, there always is, or always may be, a *repoſe*, or criſis, in which the mind acquieſces in its tranſition from one ſound to another; but a repoſe may be more or leſs diſtinctly ſignified, and of conſequence more or leſs perfect. If one ſhould riſe by fifths; if, for inſtance, we paſs from *ut* to *ſol*; it is the generator which paſſes to one of theſe fifths, and this fifth was already pre-exiſtent in its generator: but the generator exiſts no longer in this fifth; and the ear, as this generator is the principle of all harmony and of all melody, feels a deſire to it. Thus the tranſition from a ſound to its fifth in aſcent, is termed an *imperfect repoſe*, or *imperfect cadence*; but the tranſition from any ſound to its fifth in deſcent, is denominated a *perfect cadence*, or an *abſolute repoſe*: it is the offſpring which returns to its generator, and as it were recovers its exiſtence once more in that generator itſelf, with which when ſounding it reſounds (chap. i.)

74. Amongſt abſolute repoſes, there are ſome more abſolute, that is to ſay, more perfect, than others. Thus in the fundamental baſs, *ut, ſol, ut, fa, ut, ſol, re, ſol, ut*, which forms the diatonic ſcale of the moderns, there is an abſolute repoſe from *re* to *ſol*, as from *ſol* to *ut*; yet this laſt abſolute repoſe is more perfect than the preceding, becauſe the ear, prepoſſeſſed with the mode of *ut*, by the multiplied impreſſion of the ſound *ut* which it has already heard thrice before, feels a deſire to return to the generator *ut*; and it accordingly does ſo by the abſolute repoſe *ſol, ut*.

75. What is commonly called CADENCE in melody, ought not to be confounded with what we name *cadence* in harmony. In the firſt caſe, this word only ſignifies an agreeable and rapid alteration between two contiguous ſounds, called likewiſe TRILL or *ſhake*; in the ſecond, it ſignifies a repoſe or cloſe. It is however true, that this ſhake implies, or at leaſt frequently enough preſages, a repoſe, either preſent or impending, in the fundamental baſs. (See TRILL.)

76. Since there is a repoſe in paſſing from one ſound to another in the fundamental baſs, there is alſo a repoſe in paſſing from one note to another in the diatonic ſcale, which is formed from it, and which this baſs repreſents: and as the abſolute repoſe *ſol ut*, is of all others the moſt perfect in the fundamental baſs, the repoſe from *ſi* to *ut*, which anſwers to it in the ſcale, and which is likewiſe terminated by the generator, is for

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† REPOSE, *in muſic, is far from being ſynonymous with* REST. *It is the termination of a muſical* PHRASE *which ends in a cadence more or leſs emphatic, as the ſentiment implied in the phraſe is more or leſs complete. Thus a repoſe in muſic anſwers the ſame purpoſe as punctuation in language. See* REPOS *in Rouſſeau's* Muſical Dict.

that reaſon the moſt perfect of all others in the diatonic ſcale aſcending.

77. It is then a law dictated by nature itſelf, that if you would aſcend diatonically to the generator a mode, you can only do this by means of the third major from the fifth of that very generator. This third major, which with the generator forms a ſemitone, has for that reaſon been called the *ſenſible note*, as introducing the generator, and preparing us for the moſt perfect repoſe. (See SENSIBLE NOTE.) We have proved, that the fundamental baſs is the principle of melody. We ſhall make it appear in the ſequel, that the effect of a repoſe in melody ariſes ſolely from the fundamental baſs.

CHAP. IX. *Of the* MINOR MODE *and its* DIATONIC SERIES.

78. IN *Chap.* II. we have explained (art. 29. 30. 31. and 32.) by what means, and upon what principle, the minor chord *ut, mi♭, ſol, ut,* may be formed, which is the characteriſtical chord of the minor mode. Now, what we have there ſaid, taking *ut* for the principal and fundamental ſound, we might likewiſe have ſaid of any other note in the ſcale, aſſumed in the ſame manner as the principal and fundamental ſound: but as in the minor chord *ut, mi♭. ſol, ut,* there occurs a *mi♭* which is not found in the ordinary diatonic ſcale, we ſhall immediately ſubſtitute, for the greater eaſe and conveniency, another chord, which is likewiſe minor and exactly ſimilar to the former, of which all the notes are found in the ſcale.

79 The ſcale affords us three chords of this kind, viz. *re, fa, la, re; la, ut, mi, la;* and *mi, ſol, ſi, mi.* Amongſt theſe three we ſhall chooſe *la, ut, mi, la;* becauſe this chord, without including any ſharp or flat, has two ſounds in common with the major chord *ut, mi, ſol, ut;* and beſides, one of theſe two ſounds is the very ſame *ut*: ſo that this chord appears to have the moſt immediate, and at the ſame time the moſt ſimple relation with the chord *ut, mi, ſol, ut.* This preference of the chord *la, ut, mi, la,* to every other minor chord, is by no means in itſelf neceſſary for what we have to ſay in this chapter upon the diatonic ſcale of the minor mode. We might in the ſame manner have choſen any other minor chord; and it is only for greater eaſe and conveniency that we fix upon this.

80 In every mode, whether major or minor, the PRINCIPAL ſound which implies the perfect chord, whether major or minor, may be called the TONIC *note key;* thus *ut* is the key in its proper mode, *la* in the mode of *la,* &c. (See theſe articles.) Having laid down this principle,

81 We have ſhown how the three ſounds *fa, ut, ſol,* which conſtitute (art. 38.) the mode of *ut,* of which the firſt *fa* and the laſt *ſol* are the two fifths of *ut,* one deſcending, the other riſing, produce the ſcale, *ſi, ut, re, mi, fa. ſol, la,* of the major mode, by means of the fundamental baſs *ſol, ut, ſol, ut, fa, ut, fa:* (See *fig.* D.) let us in the ſame manner take the 3 ſounds *re, la, mi,* which conſtitute the mode of *la,* for the ſame reaſon that the ſounds *fa, ut, ſol,* conſtitute the mode of *ut;* and of them let us form this fundamental baſs, like the preceding, *mi, la, mi, la, re, la, re;* (See *fig.* G.) let us afterwards place below each of theſe ſounds one of their harmonics, as we have done (chap. v.) for the firſt ſcale of the major mode; with this difference, that we muſt ſuppoſe *re* and *la* as implying their thirds minor in the fundamental baſs to characteriſe the minor mode; and we ſhall have the diatonic ſcale of that mode, *ſol✱, la, ſi, ut, re, mi, fa.*

82. The *ſol✱,* which correſponds with *mi* in the fundamental baſs, forms a third major with that *mi,* though the mode be minor; for the ſame reaſon that a third from the fifth of the fundamental ſound ought to be major (art. 77.) when that third riſes to the fundamental ſound *la.*

83. It is true, that, in cauſing *mi* to imply its third major *ſol,* one might alſo riſe to *la* by a diatonic progreſs. (See *To* IMPLY, § 2.) But that manner of riſing to *la* would be leſs perfect than the preceding; for this reaſon (art. 76.), that the abſolute repoſe or perfect cadence, *mi, la,* which is found in the fundamental baſs, ought to be repreſented in the moſt perfect manner in the two notes of the diatonic ſcale which anſwer to it, eſpecially when one of theſe two notes is *la,* the key itſelf upon which the repoſe is made. Whence it follows, that the preceding note *ſol* ought rather to be ſharp than natural; becauſe *ſol✱,* being included in *mi* (art. 19.), much more perfectly repreſents the note *mi* in the baſs, than the natural *ſol* could do, which is not included in *mi.*

84. We may remark this firſt difference, between the ſcale *ſol✱, la, ſi, ut, re, mi, fa, ſol, la,* and the ſcale which correſponds with it in the major mode *ſi, ut, re, mi, fa, ſol, la,* that from *mi* to *fa,* which are the two laſt notes of the former ſcale, there is only a ſemitone; whereas from *ſol* to *la,* which are the two laſt ſounds of the latter ſeries, there is the interval of a complete tone; but this is not the only diſcrimination which may be found between the ſcales of the two modes.

85. To inveſtigate theſe differences, and to diſcover the reaſon for which they happen, we ſhall begin by forming a new diatonic ſcale of the minor mode, ſimilar to the ſecond ſcale of the major mode, *ut, re, mi, fa, ſol, ſol, la, ſi, ut.* (See *fig.* E.) That laſt ſeries, as we have ſeen, was formed by means of the fundamental baſs *fa, ut, ſol, re,* diſpoſed in this manner, *ut, ſol, ut, fa, ut, ſol, re, ſol, ut.* Let us take in the ſame manner the fundamental baſs *re la mi ſi,* and arrange it in the following order, *la, mi, la, re, la, mi, ſi, mi, la* (ſee *fig.* H.), and it will produce the ſcale ſubjoined, *la, ſi, ut, re, mi, fa✱, ſol✱, la,* in which *ut* forms a third minor with *la,* which in the fundamental baſs correſponds with it, which denominates the minor mode; and, on the contrary, *ſol✱* forms a third major with *mi* in the fundamental baſs, becauſe *ſol✱* riſes towards *la,* (art. 82. and 83.)

86. We ſee beſides a *fa✱,* which does not occur in the former, *ſol✱, la, ſi, ut, re, mi, fa,* where *fa* is natural. It is becauſe, in the firſt ſcale, *fa* is a third minor from *re* in the baſs; and in the ſecond, *fa✱* is the fifth from *ſi* in the baſs.

87. Thus the two ſcales of the minor mode are ſtill in this reſpect more different one from the other than the two ſcales of the major mode; but we do not remark this difference of a ſemitone

between the two ſcales of the major mode. We have only obſerved (art 63.) ſome difference in the value of *la* as it ſtands in each of theſe ſcales, but this amounts to much leſs than a ſemitone.

88. From thence it may be ſeen why *fa* and *ſol* are ſharp when aſcending in the minor mode; nay, beſides the *fa* is only natural in the firſt ſcale *ſol*✻, *la*, *ſi*, *ut*, *re*, *mi*, *fa*, becauſe this *fa* cannot riſe to *ſol*✻, (art. 48.)

89. It is not the ſame caſe in deſcending. For *mi*, the fifth of the generator, ought not to imply the third major *ſol*✻, but in the caſe when that *mi* deſcends to the generator *la* to form a perfect repoſe (art. 77. and 83.); and in this caſe the third major *ſol*✻ riſes to the generator *la*: but the fundamental baſs *la mi* may, in deſcending, give the ſcale *la ſol* natural, provided *ſol* does not riſe towards *la*.

90. It is much more difficult to explain how the *fa*, which ought to follow this *ſol* in deſcending, is natural and not ſharp; for the fundamental baſs *la*, *mi*, *ſi*, *mi*, *la*, *re*, *la*, *mi*, *la*, produces in deſcending, *la*, *ſol*, *fa*✻, *mi*, *mi*, *re*, *ut*, *ſi*, *la*. And it is plain that the *fa* cannot be otherwiſe than ſharp, ſince *fa*✻ is the fifth of note *ſi* of the fundamental baſs. In the mean time, experience evinces that the *fa* is natural in deſcending in the diatonic ſcale of the major mode of *la*, eſpecially when the preceding *ſol* is natural: and it muſt be acknowledged, that here the fundamental baſs appears in ſome meaſure defective. M. RAMEAU has invented the following means for obtaining a ſolution of this difficulty. According to him, in the diatonic ſcale of the minor mode in deſcending, *la*, *ſol*, *fa*, *mi*, *re*, *ut*, *ſi*, *la*, *ſol*, may be regarded ſimply as a note of paſſage, merely added to give ſweetneſs to the modulation, and as a diatonic gradation by which we may deſcend to *fa* natural. It is eaſily perceived, according to Rameau, by this fundamental baſs, *la*, *re*, *la*, *re*, *la*, *mi*, *la*, which produces *la*, *fa*, *mi*, *re*, *ut*, *ſi*, *la*; which may be regarded, as he ſays, as the real ſcale of the minor mode in deſcending; to which is added *ſol* natural between *la* and *fa*, to preſerve the diatonic order. This anſwer appears the only one which can be given to the difficulty above propoſed: but I know not whether it will fully ſatisfy the reader; whether he will not ſee with regret, that the fundamental baſs does not produce, to ſpeak properly, the diatonic ſcale of the minor mode in deſcent, when at the ſame time this ſame baſs ſo happily produces the diatonic ſcale of that identical mode in aſcending, and the diatonic ſcale of the major mode whether in riſing or deſcending.

CHAP. X. *Of* RELATIVE MODES.

91. Two modes which are of ſuch a nature that we can paſs from one to the other are called *relative* MODES. Thus we have already ſeen, that the major mode of *ut* is relative to the major mode of *fa* and to that of *ſol*. It may likewiſe appear from what goes before, how many intimate connections there are between the *ſpecies*[†], or major mode of *ut*, and the *ſpecies* or minor mode of *la*. For, 1. The perfect chords, one major *ut mi ſol ut*, the other minor *la ut mi la*, which characteriſe each of thoſe two kinds of modulation or harmony, have two ſounds in common, *ut* or *mi*. 2. The diatonic ſcale of the minor mode of *la* in deſcent, abſolutely contains the ſame ſounds with the gammut or diatonic ſcale of the major mode of *ut*. For this reaſon, the tranſition is ſo natural and eaſy from the major mode of *ut* to the minor mode of *la*, or from the minor mode of *la* to the major mode of *ut*, as experience proves.

92. In the minor mode of *mi*, the minor perfect chord *mi ſol ſi mi*, which characteriſes it, has likewiſe two ſounds, *mi*, *ſol*, in common with the perfect chord major *ut mi ſol ut*, which characteriſes the major mode of *ut*. But the minor mode of *mi* is not ſo cloſely related nor allied to the major mode of *ut* as to the minor mode of *la*; becauſe the diatonic ſcale of the minor mode of *mi* in deſcent has not, like the ſeries of the minor mode of *la*, all theſe ſounds in common with the ſcale of *ut*. In reality, this ſcale is *mi re ut ſi la ſol fa*✻ *mi*, where there occurs a *fa* ſharp which is not in the ſcale of *ut*. Though the minor mode of *mi* is leſs relative to the major mode of *ut* than that of *la*, yet the artiſt does not heſitate ſometimes to paſs immediately from the one to the other. Of this may be ſeen one inſtance (among many others) in the prologue *des Amours des Dieux*, at this paſſage, *Ovide eſt l'objet de la fete*, which is in the minor mode of *mi*, though what immediately precedes it is in the major mode of *ut*. We may ſee beſides, that when we paſs from one mode to another by the interval of a third, whether in deſcending or riſing, as from *ut* to *la*, or from *la* to *ut*, from *ut* to *mi*, or from *mi* to *ut*, the major mode becomes minor, or the minor mode becomes major.

93. There is ſtill another minor mode, into which an immediate tranſition may be made in iſſuing from the major mode of *ut*. It is the minor mode of *ut* itſelf in which the perfect minor chord *ut mi*♭ *ſol ut* has two ſounds, *ut* and *ſol*, in common with the perfect major chord *ut mi ſol ut*. Nor is there any thing more common than a tranſition from the major mode of *ut* to the minor mode, or from the minor to the major.

CHAP XI. *Of* DISSONANCE.

94. WE have obſerved, that the mode of *ut* (*fa*, *ut*, *ſol*) has two ſounds in common with the mode of *ſol* (*ut*, *ſol*, *re*); and two ſounds in common with the mode of *fa* (*ſi*♭ *fa*, *ut*); of conſequence, this procedure of the baſs *ut ſol* may belong to the mode of *ut*, or to the mode of *ſol*, as the procedure of the baſs *fa ut*, or *ut fa* may belong to the mode of *ut* or the mode of *fa*. When any one therefore paſſes from *ut* to *fa* or to *ſol* in a fundamental baſs, he is ſtill ignorant

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[†] SPECIES *was the only word which occurred to the tranſlator by which he could render the French* word genre. *It is, according to Rouſſeau, intended to expreſs the different diviſions and diſpoſitions of the intervals which formed the two tetrachords in the ancient diatonic ſcale; and as the gammut of the moderns conſiſts likewiſe of two tetrachords, though diverſified from the former, as our author has ſhown at large, the* genre *or* ſpecies *muſt conſiſt in the various diſpoſitions and diviſions of the different intervals between the notes or ſemitones which compoſe the modern ſcale.*

even to that criſis what mode he is in. It would be, however, advantageous to know it, and to be able by ſome means to diſtinguiſh the generator from its fifths.

95. This advantage may be obtained by uniting at the ſame time the ſounds *ſol* and *fa* in the ſame harmony, that is, by joining to the harmony *ſol ſi re* of the fifth *ſol*, the other fifth *fa* in this manner, *ſol ſi re fa ;* this *fa* which is added forms a diſſonance with *ſol* (art. 18.) It is for that reaſon that the chord *ſol ſi re fa*, is called a *diſſonant* chord, or a chord of the ſeventh. It ſerves to diſtinguiſh the fifth *ſol* from the generator *ut*, which always implies, without mixture or alteration, the perfect chord *ut*, *mi*, *ſol*, *ut*, reſulting from nature itſelf, (art. 32.) By this we may ſee, that when we paſs from *ut* to *ſol*, one paſſes at the ſame time from *ut* to *fa*, becauſe *fa* is found to be comprehended in the chord of *ſol ;* and the mode of *ut* by theſe means plainly appears to be determined, becauſe there is none but that mode to which the ſounds *fa* and *ſol* at once belong.

96. Let us now ſee what may be added to the harmony, *fa*, *la*, *ut*, of the fifth *fa* below the generator, to diſtinguiſh this harmony from that of the generator. It ſeems probable at firſt, that we ſhould add to it the other fifth *ſol*, ſo that the generator *ut*, in paſſing to *fa*, may at the ſame time paſs to *ſol*, and that by this, the mode ſhould be determined : but this introduction of *ſol*. in the chord *fa*, *la*, *ut*, would produce two ſeconds in ſucceſſion, *fa*, *ſol*. *ſol*, *la*, that is to ſay, two diſſonances whoſe union would prove extremely harſh to the ear ; an inconvenience which ought carefully to be avoided. For if, to diſtinguiſh the mode, we ſhould alter the harmony of the fifth *fa* in the fundamental baſs, it muſt only be altered in the leaſt degree poſſible.

97. For this reaſon, inſtead of *ſol*, we ſhall take its fifth *re*, which is the ſound that approaches it the neareſt ; and we ſhall have, inſtead of the fifth *fa*, the chord *fa*, *la*, *ut*, *re*, which is called a *chord of the great ſixth*. One may here remark the analogy between the harmony of the fifth *ſol* and that of the fifth *fa*.

98. The fifth *ſol*, in riſing above the generator, gives a chord entirely conſiſting of thirds aſcending from *ſol ; ſol*, *ſi*, *re*, *fa ;* now the fifth *fa* being below the generator *ut* in deſcending, we ſhall find, as we go lower by thirds from *ut* towards *fa*, the ſame ſounds *ut*, *la*, *fa*, *re*, which form the chord *fa*, *la*, *ut*, *re*, given to the fifth *fa*.

99. It appears beſides, that the alteration of the harmony in the two fifths conſiſts only in the third minor *re*, *fa*, which was reciprocally added to the harmony of two fifths.

Chap. XII. *Of the* Double Use *or* Employment *of* Dissonance.

100. It is evident by the reſemblance of ſounds to their octaves, that the chord *fa*. *la*, *ut*. *re*, is in effect the ſame as the chord *re*, *fa*, *la*, *ut*, taken inverſely, (See Inverted), that the inverſe of the chord *ut*, *la*, *fa*, *re*, has been found (art. 98) in deſcending by thirds from the generator *ut*. (See *Rameau's Generation Harmonique*, and our article Sub-dominant.)

101. The chord *re*, *fa*, *la*, *ut*, is a chord of the ſeventh like the chord *ſol*, *ſi*, *re*, *fa :* with this only difference, that in this the third *ſol*. *ſi*, is major: whereas in the ſecond, the third *re*. *fa*. is minor; If the *fa* were ſharp, the chord *re*, *fa*✱, *la*, *ut*, would be a genuine chord of the dominant, like the chord *ſol*, *ſi*, *re*, *fa ;* and as the dominant *ſol* may deſcend to *ut* in the fundamental baſs, the dominant *re*, implying or carrying with it the third major *fa*✱, might in the ſame manner deſcend to *ſol*.

102 Now I ſay, that if the *fa*✱ ſhould be changed into *fa* natural, *re*, the fundamental tone of this chord *re*, *fa*, *la*. *ut*, might ſtill deſcend to *ſol ;* for the change from *fa*✱ to *fa* natural, will have no other effect than to preſerve the impreſſion of the mode of *ut*, inſtead of that of the mode of *ſol*, which the *fa*✱ would have here introduced. For what remains, the note *re* will always preſerve its character as the dominant, on account of the mode of *ut*. which forms a ſeventh. Thus in the chord of which we treat, *re*, *fa*, *la*, *ut*, *re*, may be conſidered as an *imperfect dominant :* I call it *imperfect*, becauſe it carries with it the third minor *fa*, inſtead of the third major *fa*✱. For this reaſon in the ſequel I ſhall call it ſimply the *dominant*, to diſtinguiſh it from the *dominant ſol*, which ſhall be named the *tonic dominant*. (See Dominant.

103. Thus the ſounds *fa* and *ſol*, which cannot ſucceed each other (art. 36.) in a diatonic baſs when they only carry with them the perfect chords *fa*, *la*, *ut*, *ſol*. *ſi*, *re*, may ſucceed one another if you join *re* to the harmony of the firſt, *and fa* to the harmony of the ſecond ; and if you invert the firſt chord, that it is to ſay, if you give to the two chords this form, *re*, *fa*, *la*, *ut ſol*, *ſi*, *re*, *fa*.

104. Beſides the chord *fa*. *la*, *ut*, *re*, being allowed to ſucceed the perfect chord *ut*, *mi*, *ſol*. *ut*, it follows, for the ſame reaſons, that the chord *ut*, *mi*, *ſol*, *ut*, may be ſucceeded by *re*, *fa*, *la*, *ut ;* which is not contradictory to what we have above ſaid (art. 37.), that the ſounds *ut* and *re* cannot ſucceed one another in the fundamental baſs: for in the paſſage quoted, we had ſuppoſed that both *ut* and *re* carried with them a perfect chord major; whereas, in the preſent caſe, *re* carries the third minor *fa*, and likewiſe the ſound *ut*, by which the chord *re fa la ut* is connected with that which precedes it *ut mi ſol ut ;* and in which the ſound *ut* is found. Beſides, this chord, *re*, *fa*, *la*, *ut*, is properly nothing elſe but the chord *fa la ut re* inverted and diſguiſed.

105. This manner of preſenting the chord of the ſub-dominant under two different forms, and of employing it under theſe two different forms, has been called by M. Rameau its *double office* or *employment*. (See Double Employment.) This is the ſource of one of the fineſt varieties in harmony ; and we ſhall ſee in the following chapter the advantages which reſult from it. As this double employment is a kind of licence, it ought not to be practiſed without ſome precaution. We have lately ſeen that the chord *re fa la ut*, conſidered as the inverſe of *fa la ut re*, may ſucceed to *ut mi ſol ut*, but this liberty is not reciprocal : and though the chord *fa la ut re* may be followed by the chord *ut mi ſol ut*, we have no right to con-

clude

from thence that the chord *re fa la ut*, conſidered as the inverſe of *fa la ut re*, may be followed by the chord *ut mi ſol ut*. For this, the reaſon is given in Chap. XVI.

Chap. XIII. *Of the* Use *of this* Double Employment, *and its* Rules.

106. We have ſhown (chap. vi.) how the diatonic ſcale, or ordinary gammut, may be formed from the fundamental baſs *fa, ut, ſol, re*, by twice repeating the note *ſol* in that ſeries; ſo that this gammut is primitively and originally compoſed of two ſimilar tetrachords, one in the mode of *ut*, the other in that of *ſol*. Now it is poſſible, by this double employment, to preſerve the impreſſion of the mode of *ut* through the whole extent of the ſcale, without twice repeating the note *ſol*, or even without ſuppoſing this repetition. For this effect we have nothing to do but form the following fundamental baſs,

ut, ſol, ut; fa, ut, re, ſol, ut;

in which *ut* is underſtood to carry with it the perfect chord *ut mi ſol ut*; *ſol*, the chord *ſol ſi re fa*; *fa*, the chord *fa la ut re*; and *re*, the chord *re fa la ut*. It is plain from what has been ſaid in the preceding chapter, that in this caſe *ut* may aſcend to *re* in the fundamental baſs, and *re* deſcend to *ſol*, and that the impreſſion of the mode of *ut* is preſerved by the *fa* natural, which forms the third minor *re fa*, inſtead of the third major, which *re* ought naturally to imply.

107. This fundamental baſs will give the ordinary diatonic ſcale, *ut, re, mi, fa, ſol, la, ſi, UT*, which of conſequence will be in the mode of *ut* alone; and if one ſhould chooſe to have the ſecond tetrachord in the mode of *ſol*, it will be neceſſary to ſubſtitute *fa*※ inſtead of *fa* natural in the harmony of *re*.

108. Thus the generator *ut* may be followed according to pleaſure, in aſcending diatonically, either by a tonic dominant (*re fa※ la ut*), or by a ſimple dominant (*re fa la ut*).

109. In the minor mode of *la*, the tonic dominant *mi* ought always to imply its third major *mi ſol※*, when this dominant *mi* deſcends to the generator *la* (art 83.); and the chord of this dominant ſhall be *mi ſol※ ſi re*, entirely ſimilar to *ſol ſi re fa*. With reſpect to the ſub-dominant *re*, it will immediately imply the third minor *fa*, to denominate the minor mode; and we may add *ſi* above its chord *re fa la*, in this manner *re fa la ſi*, a chord ſimilar to that of *fa la ut re*; and as we have deduced from the chord *fa la ut re* that of *re fa la ut*, we may in the ſame manner deduce from the chord *re fa la ſi* a new chord of the ſeventh *ſi re fa la*, which will exhibit the *double employment of diſſonances* in the minor mode.

110. One may employ this chord *ſi re fa la*, to preſerve the impreſſion of the mode of *la* in the diatonic ſcale of the minor mode, and to prevent the neceſſity of twice repeating the ſound *mi*; but in this caſe, the *fa* muſt be rendered ſharp, and change this chord to *ſi re fa※ la*, the fifth of *ſi* is *fa※*, as we have ſeen above; this chord is then the inverſe of *re fa※ la ſi*, where the ſubdominant implies the third major, which ought not to ſurpriſe us. For in the minor mode of *la*, the ſecond tetrachord *mi fa※ ſol※ la* is exactly the ſame as it would be in the major mode of *la*; now, in the major mode of *la*, the ſubdominant *re* ought to imply the third major *fa※*.

111. From thence we may ſee that the minor mode is ſuſceptible of a much greater number of varieties than the major: likewiſe the major mode is the product of nature alone; whereas the minor is, in ſome meaſure, the product of art. But in return, the major mode has received from nature, to which it owes its immediate formation, a force and energy which the minor cannot boaſt.

Chap. XIV. *Of the* different kinds *of* Chords *of the* Seventh.

112. The diſſonance added to the chord of the dominant and of the ſub-dominant, though in ſome meaſure inſinuated by nature (chap xi.), is nevertheleſs a work of art; but as it produces great beauties in the harmony by the variety which it introduces into it, let us diſcover whether, in conſequence of this firſt advance, art may not ſtill be carried farther.

113. We have already three different kinds of chords of the ſeventh, viz. 1. The chord *ſol ſi re fa*, compoſed of a 3d major followed by two 3ds minor. 2. The chord *re fa la ut*, or *ſi re fa※ la*, compoſed of a third major between two minors. 3. The chord *ſi re fa la*, compoſed of two thirds minor followed by a major.

114. There are ſtill two other kinds of chords of the ſeventh which are employed in harmony; one is compoſed of a third minor between two thirds major, *ut mi ſol ſi*, or *fa la ut mi*; the other is wholly compoſed of thirds minor *ſol※ ſi re fa*. Theſe two chords, which at firſt appear as if they ought not to enter into harmony, if we rigorouſly keep to the preceding rules, are nevertheleſs frequently practiſed with ſucceſs in the fundamental baſs. The reaſon is this:

115. According to what has been ſaid above, if we would add a ſeventh to the chord *ut mi ſol*, to make a dominant of *ut*, one can add nothing but *ſi*♭; and in this caſe *ut mi ſol ſi*♭ would be the chord of the tonic dominant in the mode of *fa*, as *ſol ſi re fa* is the chord of the tonic dominant in the mode of *ut*; but if you would preſerve the impreſſion of the mode of *ut* in the harmony, you then change this *ſi*♭ into *ſi* natural, and the chord *ut mi ſol ſi*♭ becomes *ut mi ſol ſi*. It is the ſame caſe with the chord *fa la ut mi*, which is nothing elſe but the chord *fa la ut mi*♭; in which one may ſubſtitute for *mi*♭ *mi* natural, to preſerve the impreſſion of the mode of *ut*, or of that of *fa*. Beſides, in ſuch chords as *ut mi ſol ſi*, *fa la ut mi*, the ſounds *ſi* and *mi*, though they form a diſſonance with *ut* in the firſt caſe, and with *fa* in the ſecond, are nevertheleſs ſupportable to the ear, becauſe theſe ſounds *ſi* and *mi* (art. 19.) are already contained and underſtood, the firſt in the note *mi* of the chord *ut mi ſol ſi*, as likewiſe in the note *ſol* of the ſame chord; the ſecond in the note *la* of the chord *fa la ut mi*, as likewiſe in the note *ut* of the ſame chord. All together then ſeem to allow the artiſt to introduce the note *ſi* and *mi* into theſe two chords.

116. With reſpect to the chord of the ſeventh *ſol※ ſi re fa*, wholly compoſed of thirds minor, it may be regarded as formed from the union of

the two chords of the dominant and of the ſub-dominant in the minor mode. In effect, in the minor mode of *la*, for inſtance, theſe two chords are *mi ſol※ ſi re*, and *re fa la ſi*, whoſe union produces *mi*, *ſol※*, *ſi*, *re*, *fa*, *la*. Now, if we ſhould ſuffer this chord to remain thus, it would be diſagreeable to the ear, by its multiplicity of diſſonances, *re mi*, *mi la*, *la ſol※*, *la ſi*, *re ſol※*, (art. 18.); ſo that to avoid this inconveniency, the generator *la* is immediately expunged, which (art. 19.) is as it were underſtood in *re*, and the fifth or dominant *mi* whoſe place the ſenſible note *ſol※* is ſuppoſed to hold: thus there remains no more than the chord *ſol※ ſi re fa*, wholly compoſed of thirds minor, and in which the dominant *mi* is conſidered as underſtood; in ſuch a manner that the chord *ſol※ ſi re fa* repreſents the chord of the tonic dominant *mi ſol※ ſi re*, to which we have joined the chord of the ſub-dominant *re fa la ſi*, but in which the dominant *mi* is always reckoned the principal note.

117. Since, then, from the chord *mi ſol※ ſi re*, we may paſs to the perfect *la ut mi la*, and *vice verſa*, we may in like manner paſs from the chord *ſol※ ſi re fa* to the chord *la ut mi la*, and from this laſt to the chord *ſol ſi re fa*: this remark will be very uſeful to us in the ſequel.

Chap. XV. *Of the* Preparation *of* Discords.

118. In every chord of the ſeventh the higheſt note, that is to ſay, the ſeventh above the fundamental, is called a dissonance or discord; thus *fa* is the diſſonance of the chord *ſol ſi re fa*, *ut* in the chord *re fa la ut*, &c. (See Discord, § 2.)

119. When the chord *ſol ſi re fa* follows the chord *ut mi ſol ut*, as this may happen, and in reality often happens, it is obvious that we do not find the diſſonance *fa* in the preceding chord *ut mi ſol ut*. Nor ought it indeed to be found in that chord; for this diſſonance is nothing elſe but the ſub-dominant added to the harmony of the dominant to determine the mode: now, the ſub-dominant is not found in the harmony of the generator.

120. For the ſame reaſon, when the chord of the ſub-dominant *fa la ut re* follows the chord *ut mi ſol ut*, the note *re*, which forms a diſſonance with *ut*, is not found in the preceding chord. It is not ſo when the chord *re fa la ut* follows the chord *ut mi ſol ut*; for *ut*, which forms a diſſonance in the ſecond chord, ſtands as a conſonance in the preceding.

121. In general, diſſonance being the production of art (chap. xi.) eſpecially in ſuch chords as are not of the tonic dominant nor ſub-dominant; the only means to prevent its diſpleaſing the ear by appearing too heterogeneous to the chord, is, that it may be announced to the ear by being found in the preceding chord, and thus ſerve to connect the two chords. From whence follows this rule:

122. In every chord of the ſeventh, which is not the chord of the tonic dominant, that is, (art. 102.) which is not compoſed of a third major followed by two thirds minor, the diſſonance which this chord forms ought to ſtand as a conſonance in the chord which precedes it. This is what we call a *prepared diſſonance*. (See Preparation, § 2.)

123. From thence it follows, that to prepare a diſſonance, it is abſolutely neceſſary that the fundamental baſs ſhould aſcend by the interval of a ſecond, as *Ut mi ſol ut*, *RE fa la ut*; or deſcend by a third, as *UT mi ſol ut*, *LA ut mi ſol*; or deſcend by a fifth, as *UT mi ſol ut*, *FA la ut mi*: In every other caſe the diſſonance cannot be prepared. This is what may be eaſily aſcertained. If, for inſtance, the fundamental baſs riſes by a third, as *ut mi ſol ut*, *mi ſol ſi re*, the diſſonance *re* is not found in the chord *ut mi ſol ut*. The ſame might be ſaid of *ut mi ſol ut*, *ſol ſi re fa*, and *ut mi ſol ut*, *ſi re fa la*, in which the fundamental baſs riſes by a fifth or deſcends by a ſecond.

124. When a tonic, that is, a note which carries with it a perfect chord, is followed by a dominant in the interval of a fifth or third, this procedure may be regarded as a proceſs from the ſame tonic to another, which has been rendered a dominant by the addition of the diſſonance. We have ſeen (art. 119. and 120.) that a diſſonance does not ſtand in need of preparation in the chords of the tonic dominant and of the ſub-dominant: whence it follows, that every tonic carrying with it a perfect chord, may be changed into a tonic dominant (if the perfect chord be major), or into a ſubdominant (whether the chord be major or minor) by adding the diſſonance all at once.

Chap. XVI. *Of the* Rules *for reſolving* Dissonances.

125. We have ſeen (chap. v. and vi.) how the diatonic ſcale, ſo natural to the voice, is formed by the harmonies of fundamental ſounds, whence it follows, that the moſt natural ſucceſſion of harmonical ſounds is to be diatonic. To give a diſſonance, then, in ſome meaſure, as much the character of an harmonic ſound as poſſible, it is neceſſary that this diſſonance, in that part of the modulation where it is found, ſhould deſcend or riſe diatonically upon another note, which may be one of the conſonances of the ſubſequent chord.

126. Now in the chord of the tonic dominant it ought rather to deſcend than to riſe; for this reaſon: Let us take, for inſtance, the chord *ſol ſi re fa* followed by the chord *ut mi ſol ut*; the part which formed the diſſonance *fa* ought to deſcend to *mi* rather than riſe to *ſol*, though both the ſounds *mi* and *ſol* are found in the ſubſequent chord *ut mi ſol ut*; becauſe it is more natural and more conformed to the connection which ought to be found in every part of the muſic, that *ſol* ſhould be found in the ſame part where *ſol* has already been founded, whilſt the other part was ſounding *fa*, as may be here ſeen; (parts firſt and fourth:) Firſt part, *fa mi*; Second, *ſi ut*; Third, *re ut*; Fourth, *ſol ſol*. Fundamental baſs, *ſol ut*.

127. For the ſame reaſon, in the chord of the ſimple dominant *re fa la ut*, followed by *ſol ſi re fa*, the diſſonance *ut* ought rather to deſcend to *ſi* than riſe to *re*.

128. In ſhort, for the ſame reaſon, we ſhall find that in the chord of the ſub-dominant *fa la ut re*

he diſſonance *re* ought to riſe to *mi* of the folowing chord *ut mi ſol ut*, rather than deſcend to *t*; whence may be deduced the following rules:

129. 1°. In every chord of the dominant, whether tonic or ſimple, the note which conſtitutes he ſeventh, that is to ſay the diſſonance, ought diatonically to deſcend upon one of the notes which form a conſonance in the ſubſequent chord. ° In every chord of the ſubdominant, the diſſonance ought to riſe diatonically upon the third of he ſubſequent chord.

130. A diſſonance which deſcends or riſes diatonically, according to theſe two rules, is called a *iſſonance reſolved*. (See Resolution, § 4.) From heſe rules it is a neceſſary reſult, that the chord f the ſeventh *re fa la ut*, though one ſhould even onſider it as the inverſe of *fa la ut re*, cannot be ucceeded by the chord *ut mi ſol ut*, ſince there is ot in this laſt chord of *ſi* any note upon which he diſſonance *ut* of the chord *re fa la ut* can deſcend. One may beſides find another reaſon for his rule, in examining the nature of the double mployment of diſſonances. In effect, in order to aſs from *re fa la ut* to *ut mi ſol ut*, it is neceſſary hat *re fa la ut* ſhould in this caſe be underſtood s the inverſe of *fa la ut re*. Now the chord *re* *a la ut* can only be conceived as the inverſe of *fa* *ut re*, when this chord *re fa la ut* precedes or mmediately follows the *ut mi ſol ut*; in every ther caſe the chord *re fa la ut* is a primitive hord, formed from the perfect minor chord *re* *a la*, to which the diſſonance *ut* was added, to ake from *re* the character of a tonic. Thus the hord *re fa la ut* could not be followed by the hord *ut mi ſol ut*, but after having been preceded y the ſame chord. Now, in this caſe, the *double* *mployment* would be entirely a futile expedient, without producing any agreeable effect; becauſe, nſtead of this ſucceſſion of chords, *ut mi ſol ut*, *re* *a la ut*, *ut mi ſol ut*, it would be much more eaſy nd natural to ſubſtitute this other, which furniſhes this natural proceſs, *ut mi ſol ut*, *fa la ut re*, *t mi ſol ut*. The proper uſe of the double employment is, that, by inverting the chord of the ub dominant, it may be able to paſs from that hord thus inverted to any other chord except at of the tonic, to which it naturally leads.

HAP. XVII. *Of the* BROKEN *or* INTERRUPTED CADENCE.

131. In a fundamental baſs which moves by fiths, there is always, as we have formerly obſerved (chap. viii.), a repoſe more or leſs perfect om one ſound to another; and of conſequence ere muſt likewiſe be a repoſe more or leſs perfect om one ſound to another in the diatonic ſcale, hich reſults from that baſs. It may be demonſtrated by a very ſimple experiment, that the cauſe f a repoſe in melody is ſolely in the fundamental aſs expreſſed or underſtood. Let any perſon ſing eſe three notes *ut re ut*, performing on the *re* a ake, which is commonly called a *cadence*; the odulation will appear to him to be finiſhed after e ſecond *ut*, in ſuch a manner that the ear will either expect nor wiſh any thing to follow. The aſe will be the ſame if we accompany this modulation with its natural fundamental baſs *ut ſol ut*: but if, inſtead of this baſs, we ſhould give it the following *ut ſol la*; in this caſe the modulation *ut re ut* would not appear to be finiſhed, and the ear would ſtill expect and deſire ſomething more. This experiment may eaſily be made.

132. This paſſage *ſol la*, when the dominant *ſol* diatonically aſcends upon the note *la*, inſtead of deſcending by a fifth upon the generator *ut*, as it ought naturally to do, is called a *broken cadence*; becauſe the perfect cadence *ſol ut*, which the ear expected after the dominant *ſol*, is broken and ſuſpended by the tranſition from *ſol* to *la*. See Cadence, § 3.

133. From thence it follows, that if the modulation *ut re ut* appeared finiſhed when we ſuppoſed no baſs to it at all, it is becauſe its natural fundamental baſs *ut ſol ut* is ſuppoſed to be implied; becauſe the ear deſires ſomething to follow this modulation, as ſoon as it is reduced to the neceſſity of hearing another baſs.

134. The interrupted cadence may be conſidered as having its origin in the *double employment of diſſonances*; ſince this cadence, like the double employment, only conſiſts in a diatonic procedure of the baſs aſcending (chap. xii.) In effect, nothing hinders us to deſcend from the chord *ſol ſi re fa* to the chord *ut mi ſol la*, by converting the tonic *ut* into a ſub-dominant, that is to ſay, by paſſing all at once from the mode of *ut* to the mode of *ſol*: now to deſcend from *ſol ſi re fa* to *ut mi ſol la* is the ſame thing as to riſe from the chord *ſol ſi re fa* to the chord *la ut mi ſol*, in changing the chord of the ſubdominant *ut mi ſol la* for the imperfect chord of the dominant, according to the laws of the double employment.

135. In this kind of cadence, the diſſonance of the firſt chord is reſolved by deſcending diatonically upon the fifth of the ſubſequent chord. For inſtance, in the broken cadence *ſol ſi re fa*, *la ut mi ſol*, the diſſonance *fa* is reſolved by deſcending diatonically upon the fifth *mi*.

136. There is ſtill another kind of cadence called an *interrupted cadence*, where the dominant deſcends by a third to another dominant, inſtead of deſcending by a fifth upon the tonic, as in this proceſs of the baſs, *ſol ſi re fa*, *mi ſol ſi re*; in the caſe of an interrupted cadence, the diſſonance of the former chord is reſolved by deſcending diatonically upon the octave of the fundamental note of the ſubſequent chord, as may be here ſeen, where *fa* is reſolved upon the octave of *mi*.

137. This kind of interrupted cadence has likewiſe its origin in the double employment of diſſonances. For let us ſuppoſe theſe two chords in ſucceſſion, *ſol ſi re fa*, *ſol ſi re mi*, where the note *ſol* is ſucceſſively a tonic dominant and ſub-dominant; that is to ſay, in which we paſs from the mode of *ut* to the mode of *re*; if we ſhould change the ſecond of theſe chords into the chord of the dominant, according to the laws of the double employment, we ſhall have the interrupted cadence *ſol ſi re fa*, *mi ſol ſi re*.

CHAP. XVIII. *Of the* CHROMATIC SPECIES.

138. The ſeries or fundamental baſs by fifths produces the diatonic ſpecies in common uſe (chap. vi.): now the third major being one of the

harmonics of a fundamental ſound as well as the fifth, it follows, that we may form fundamental baſſes by thirds major, as we have already formed fundamental baſſes by fifths.

139. If then we ſhould form this baſs *ut, mi, ſol*♯, the two firſt ſounds carrying each along with it their thirds major and fifths, it is evident that *ut* will give *ſol*, and that *mi* will give *ſol*♯: now the ſemitone which is between this *ſol* and this *ſol*♯ is an interval much leſs than the ſemitone which is found in the diatonic ſcale between *mi* and *fa*, or between *ſi* and *ut*. (See *Fig.* K.) This may be aſcertained by calculation; it is for this reaſon that the ſemitone from *mi* to *fa* is called *major*, and the other *minor*.

140. If the fundamental baſs ſhould proceed by thirds minor in this manner, *ut, mi*♭, a ſucceſſion which is allowed when we have inveſtigated the origin of the minor mode (chap. ix.) we ſhall find this modulation *ſol, ſol*♭, which would likewiſe give a minor ſemitone.

141. The minor ſemitone is hit by young practitioners in intonation with more difficulty than the ſemitone major. For which this reaſon may be aſſigned: The ſemitone major which is found in the diatonic ſcale, as from *mi* to *fa*, reſults from a fundamental baſs by fifths *ut fa*, that is to ſay, by a ſucceſſion which is moſt natural, and for this reaſon the eaſieſt to the ear. On the contrary, the minor ſemitone ariſes from a ſucceſſion by thirds, which is ſtill leſs natural than the former. Hence, that ſcholars may truly hit the minor ſemitone, the following artifice is employed. Let us ſuppoſe, that they intend to riſe from *ſol* to *ſol*♯; they riſe at firſt from *ſol* to *la*, then deſcend from *la* to *ſol*♯ by the interval of a ſemitone major; for this *ſol* ſharp, which is a ſemitone major below *la*, proves a ſemitone minor above *ſol*.

142. Every procedure of the fundamental baſs by thirds, whether major or minor, riſing or deſcending, gives the minor ſemitone. This we have already ſeen from the ſucceſſion of thirds in aſcending. The ſeries of thirds minor in deſcending, *ut, la*, gives *ut, ut*♯; and the ſeries of thirds major in deſcending, *ut la*♭, gives *ut, ut*♭.

143. The minor ſemitone conſtitutes the ſpecies called *chromatic;* and with the ſpecies which moves by diatonic intervals, reſulting from the ſucceſſion of fifths (chap. v. and vi.) it comprehends the whole of melody.

CHAP. XIX. *Of the* ENHARMONIC SPECIES.

144. THE two extremes, or higheſt and loweſt notes *ut ſol*♯, of the fundamental baſs by thirds major, *ut mi ſol*♯, give the modulation *ut ſi*♯; and theſe two ſounds *ut ſi*♯ differ between themſelves by a ſmall interval which is called the *dieſis*, or *enharmonic fourth of a tone*, which is the difference between a ſemitone major and a ſemitone minor*. This quarter tone is inappretiable by the ear, and impracticable upon ſeveral of our inſtruments. Yet have means been found to put it in practice in the following manner, or rather to perform what will have the ſame effect upon the ear.

145. We have explained (art. 116.) in what manner the chord *ſol*♯ *ſi re fa* may be introduced into the minor mode, entirely conſiſting of thirds minor perfectly true, or at leaſt ſuppoſed ſuch. This chord ſupplying the place of the chord of the dominant (art. 116.), from thence we may paſs to that of the tonic or generator *la* (art. 117.) But we muſt remark, 1. That this chord *ſol*♯ *ſi re fa*, entirely conſiſting of thirds minor, may be inverted or modified according to the three following arrangements, *ſi re fa ſol*♯, *re fa ſol*♯ *ſi*, *fa ſol*♯ *ſi re*; and that in all theſe three different ſtates, it will ſtill remain compoſed of thirds minor; or at leaſt there will only be wanting the enharmonic fourth of a tone to render the third minor between *fa* and *ſol*♯ entirely juſt; for a true third minor, as that from *mi* to *ſol* in the diatonic ſcale, is compoſed of a ſemitone and a tone both major. Now, from *fa* to *ſol* there is a tone major, and from *ſol* to *ſol*♯ there is only a minor ſemitone. There is then wanting (art. 144.) the enharmonic fourth of a tone, to render the third *fa ſol*♯ exactly true. But as this diviſion of a tone cannot be found in the gradations of any ſcale practicable upon moſt of our inſtruments, nor be appretiated by the ear, the ear takes the different chords,

ſi *re* *fa* *ſol*♯,
re *fa* *ſol*♯ *ſi*,
fa *ſol*♯ *ſi* *re*,

which are abſolutely the ſame, for chords compoſed every one of thirds minor exactly juſt. Now the chord *ſol*♯ *ſi re fa*, belonging to the minor mode of *la*, where *ſol*♯ is the ſenſible note; the chord *ſi re fa ſol*♯, or *ſi re fa la*♭, will, for the ſame reaſon, belong to the minor mode of *ut*, where *ſi* is the ſenſible note. In like manner, the chord *re fa ſol✻ ſi*, or *ſi re fa la♭ ut♭*, will belong to the minor mode of *mi♭*, and the chord *fa ſol✻ ſi re*, or *fa la♭ ut♭ mi♭♭*, to the minor mode of *ſol♭*. After having paſſed then by mode of *la* to the chord *ſol✻ ſi re fa* (art. 117.), one may, by means of this laſt chord, and by merely ſatisfying ourſelves to invert it, afterwards paſs all at once to the modes of *ut* minor, of *mi♭* minor, or of *ſol♭* minor; that is to ſay, into the modes which have nothing, or almoſt nothing, in common with the minor mode of *la*, and which are entirely foreign to it.[*]

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* Sol♯ *being twenty-five 16ths, and* ſi♯ *being five 4ths of twenty-five 16ths, we ſhall have* ſi♯ *equal to* $\frac{125}{64}$*, and its octave below ſhall be* $\frac{125}{128}$*; an interval leſs than unity by about* $\frac{3}{128}$ *or* $\frac{1}{43}$*. It is plain then from this fraction, that the* ſi♯ *in queſtion muſt be conſiderably lower than* ut. *This interval has been called* the fourth of a tone, *and this denomination is founded on reaſon. In effect, we may diſtinguiſh in muſic four kinds of quarter tones: 1. The fourth of a tone major: now, a tone major being nine 8ths, and its difference from unity being one 8th, the difference of this quarter tone from unity will be about the fourth of one 8th; that is to ſay,* $\frac{1}{32}$*. 2. The fourth of a tone minor; and as a tone minor, which is ten 9ths, differs from unity by one 9th, the fourth of a minor tone will differ from unity about* $\frac{1}{36}$*. 3. One half of a tone major; and as this ſemitone differs from unity by one 15th, one half of it will differ from unity about one 30th. 4. Finally, one half of a ſemitone minor which differs from unity by one 24th; its half then will be one 48th. The interval, then, which forms the enharmonic fourth of a tone, as it does not differ from unity but by one 43d, may juſtly be called the* fourth of a tone, *ſince it is leſs different from unity than the largeſt interval of a quarter tone, and more than the leaſt. Since the enharmonic fourth of a tone is the difference between a ſemitone major and a ſemitone minor; and ſince the tone minor is formed of two ſemitones, one major and the other minor, it follows, that two ſemitones major in ſucceſſion form an interval larger than that of a tone by the enharmonic fourth of a tone; and that two minor ſemitones in ſucceſſion form an interval leſs than a tone by the ſame fourth of a tone.*

146. It muſt, however, be acknowledged, that a tranſition ſo abrupt, and ſo little expected, cannot deceive nor elude the ear; it is ſtruck with a ſenſation ſo unlooked-for, without being able to account for the paſſage to itſelf. And this account has its foundation in the enharmonic fourth of a tone; which is overlooked as nothing, becauſe it is inappretiable by the ear; but of which, though its value is not aſcertained, the whole harſhneſs is ſenſibly perceived. The inſtant of ſurpriſe, however, immediately vaniſhes; and that aſtoniſhment is turned into admiration, when one feels himſelf tranſported as it were all at once, and almoſt imperceptibly, from one mode to another, which is by no means relative to it, and to which he never could have immediately paſſed by the ordinary ſeries of fundamental notes.

Chap. XX. *Of the* Diatonic Enharmonic Species.

147. If we form a fundamental baſs, which riſes alternately by fifths and thirds, as *fa, ut, mi, ſi*, this baſs will give the following modulation, *fa, mi, mi, re✻*; in which the ſemitones from *fa* to *mi*, and from *mi* to *re✻*, are equal and major. (See *fig.* M.) This ſpecies of modulation or of harmony, in which all the ſemitones are major, is called the *enharmonic diatonical* ſpecies. (See Enharmonic.) The major ſemitones peculiar to this ſpecies give it the name of *diatonic*, becauſe major ſemitones belong to the diatonic ſpecies; and the tones which are greater than major by the exceſs of a fourth, reſulting from a ſucceſſion of major ſemitones, give it the name of *enharmonic*

Chap. XXI. *Of the* Chromatic Enharmonic Species.

148. If we paſs alternately from a third minor in deſcending to a third major in riſing, as *ut, ut, la, ut✻, ut✻*, we ſhall form this modulation *mi♭, mi, mi, mi, mi✻*, in which all the ſemitones are minor. See *Fig.* N. This ſpecies is called the *chromatic enharmonical* ſpecies; the minor ſemitones peculiar to this kind give it the name of *chromatic*, becauſe minor ſemitones belong to the chromatic ſpecies; and the ſemitones which are leſſer by the diminution of a fourth reſulting from a ſucceſſion of minor ſemitones, give it the name of *enharmonic*.

149. Theſe new ſpecies confirm what we have all along ſaid, that the whole effects of harmony and melody reſide in the fundamental baſs.

150. The diatonic ſpecies is the moſt agreeable, becauſe the fundamental baſs which produces it is formed from a ſucceſſion of fifths alone, which is the moſt natural of all others.

151. The chromatic being formed from a ſucceſſion of thirds, is the moſt natural after the preceding.

152. Finally, the enharmonic is the leaſt agreeable of all, becauſe the fundamental baſs, which gives it, is not immediately indicated by nature. The fourth of a tone which conſtitutes this ſpecies, and which is itſelf inappretiable to the ear, neither produces nor can produce its effect, but in proportion as imagination ſuggeſts the fundamental baſs from whence it reſults; a baſs whoſe procedure is not agreeable to nature, ſince it is formed of two ſounds which are not contiguous one to the other in the ſeries of thirds, (art. 144.)

Chap. XXII. *Showing that* Melody *is the* Offspring *of* Harmony.

153. All that we have hitherto ſaid is more than ſufficient to convince us, that melody has its original principle in harmony; and that it is in harmony, expreſſed or underſtood, that we ought to look for the effects of melody.

154. If this ſhould ſtill appear doubtful, nothing more is neceſſary than to pay due attention to the firſt experiment (art. 19.); where it may be ſeen that the principal ſound is always the loweſt, and that the ſharper ſounds which it generates are, with relation to it, what the treble of an air is to its baſs.

155. Yet more, we have proved, in treating of broken cadence (chap. xvii.), that the diverſification of baſſes produces effects totally different in a modulation which, in other reſpects, remains the ſame.

156. Can it be ſtill neceſſary to adduce more convincing proofs? We have nothing to do but examine the different baſſes which may be given to this very ſimple modulation *ſol, ut*; of which it will be found ſuſceptible of many, and each of theſe baſſes will give a different character to the modulation *ſol ut*, though in itſelf it remains always the ſame; in ſuch a manner that we may change the whole nature and effects of a modulation, without any other alteration except that of changing its fundamental baſs. M. Rameau has ſhown, in his *New Syſtem of Muſic*, printed at Paris 1726, p. 44. that this modulation *ſol ut* is ſuſceptible of 20 different fundamental baſſes. Now, the ſame fundamental baſs, as may be ſeen in our 2d part, will afford ſeveral continued or thorough baſſes. How many means of conſequence may be practiſed to vary the expreſſion of the ſame modulation?

157. From theſe different obſervations it may be concluded, 1. That an agreeable melody naturally implies a baſs extremely ſweet and adapted for ſinging; and that reciprocally, as muſicians expreſs it, a baſs of this kind generally prognoſticates an agreeable melody. 2. That the character of a juſt harmony is only to form in ſome meaſure one ſyſtem with the modulation, ſo that from the whole taken together the ear may only receive one ſimple and indiviſible impreſſion. 3. That the character of the ſame modulation may

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[*] See Dr Smith's Harmonies, *a learned and ingenious work, wherein various advantageous improvements are propoſed in the ſtructure of inſtruments, and for correcting their defects.*

be diverſified, according to the character of the baſs which is joined with it. But, notwithſtanding the dependency of melody upon harmony, and the ſenſible influence which the latter may exert upon the former; we muſt not however from thence conclude, with ſome celebrated muſicians, that the effects of harmony are preferable to thoſe of melody. Experience proves the contrary.*

General Remark.

The diatonic ſcale or gammut being compoſed of twelve ſemitones, it is clear that each of theſe ſemitones, taken by itſelf, may be the generator of a mode; and that thus there muſt be 24 modes in all, 12 major and 12 minor. We have aſſumed the major mode of *ut*, to repreſent all the major modes in general, and the minor mode of *la* to repreſent the modes minor, to avoid the difficulties ariſing from ſharps and flats, of which we muſt have encountered either a greater or leſſer number in the other modes. But the rules we have given for each mode are general, whatever note of the gammut be taken for the generator of a mode.

PART II.

PRINCIPLES AND RULES OF COMPOSITION.

158. COMPOSITION, which is likewiſe called *counterpoint*, is not only the art of compoſing an agreeable air, but alſo that of compoſing a great many airs in ſuch a manner, that when heard at the ſame time, they may unite in producing an effect agreeable and delightful to the ear; this is what we call *Compoſing muſic in ſeveral parts*. (See Composition, § 6, 7.) The higheſt of theſe parts is called the *treble*, the loweſt is termed the *baſs;* the other parts, when there are any, are termed *middle parts;* and each in particular is ſignified by a different name.

Chap. I. *Of the* Different Names *given to the* same Interval.

159. In the introduction (art. 9.), which is at the front of this treatiſe, we have ſeen a detail of the moſt common names which are given to the different intervals. But there are particular intervals which have obtained different names, according to particular circumſtances; which it is proper to explain.

160. An interval compoſed of a tone and a ſemitone, which is commonly called a *third minor*, is likewiſe ſometimes called a *ſecond redundant;* ſuch is the interval from *ut* to *re*♯ in aſcending, or that of *la* to *ſol*♭ deſcending. This interval is ſo termed, becauſe one of the ſounds which form it is always either ſharp or flat, and that if you deduce that ſharp or that flat, the interval will be that of a ſecond.

161. An interval compoſed of two tones and two ſemitones, as that from *ſi* to *fa*, is called a *falſe fifth*. This interval is the ſame with the *triton* (art. 9.), ſince two tones and two ſemitones are equivalent to three tones. There are, however, ſome reaſons for diſtinguiſhing them, as will appear below.

162. As the interval from *ut* to *re*♯ in aſcending has been called a ſecond redundant, they likewiſe call the interval from *ut* to *ſol*♯ in aſcending a *fifth redundant*, or from *ſi* to *mi*♭ in deſcending, each of which intervals are compoſed of four tones. This interval is, in the main, the ſame with that of the ſixth minor (art. 6.); but in the fifth redundant there is always a ſharp or a flat; inſomuch, that if this ſharp or flat were deduced, the interval would become a true fifth.

163. For the ſame reaſon, an interval compoſed of three tones and three ſemitones, as from *ſol*♯ to *fa* in aſcending, is called a *ſeventh diminiſhed;* becauſe if you deduce the ſharp from *ſol*, the interval from *ſol* to *fa* will become that of an ordinary ſeventh; the interval of a ſeventh diminiſhed, is in other reſpects the ſame with that of the ſixth major (art. 9.)

164. The major ſeventh is likewiſe ſometimes called a *ſeventh redundant*.

Chap. II. Comparison *of the* Different Intervals.

165. If we ſing *ut ſi* in deſcending by a ſecond, and afterwards *ut ſi* in aſcending by a ſeventh, theſe two *ſi*'s ſhall be octaves one to the other, or, as we commonly expreſs it, they will be *replications* one of the other.

166. On account then of the reſemblance between every ſound and its octave (art. 22.), it follows, that *to riſe by a ſeventh*, or *deſcend by a ſecond*, amount to one and the ſame thing.

167. In like manner, it is evident that the ſixth is nothing but a replication of the third, nor the fourth but a replication of the fifth.

168. The following expreſſions either are or ought to be regarded as ſynonimous:

To riſe To deſcend	by a ſecond.	To deſcend To riſe	by a ſeventh.
To riſe To deſcend	by a third.	To deſcend To riſe	by a ſixth.
To riſe To deſcend	by a fourth.	To deſcend To riſe	by a fifth.

169. Thus, therefore, we ſhall employ them indifferently the one for the other; ſo that when we ſay, for inſtance, *to riſe by a third*, it may be ſaid with equal propriety *to deſcend by a ſixth*, &c.

Chap. III. *Of the* different Cleffs; *of the* Value *or* Quantity; *of the* Rithmus; *and of* Syncopation.

170. There are three cleffs in muſic (ſee Cleff, § 2.); the cleff of *fa* 𝄢, or 𝄢; the cleff *ut* 𝄡; and the cleff of *ſol* 𝄞. But, in Britain the following characters are uſed; the F, or baſs cleff 𝄢; the C, or tenor cleff 𝄡; and the G, or treble cleff 𝄞. The cleff of *fa* is placed on

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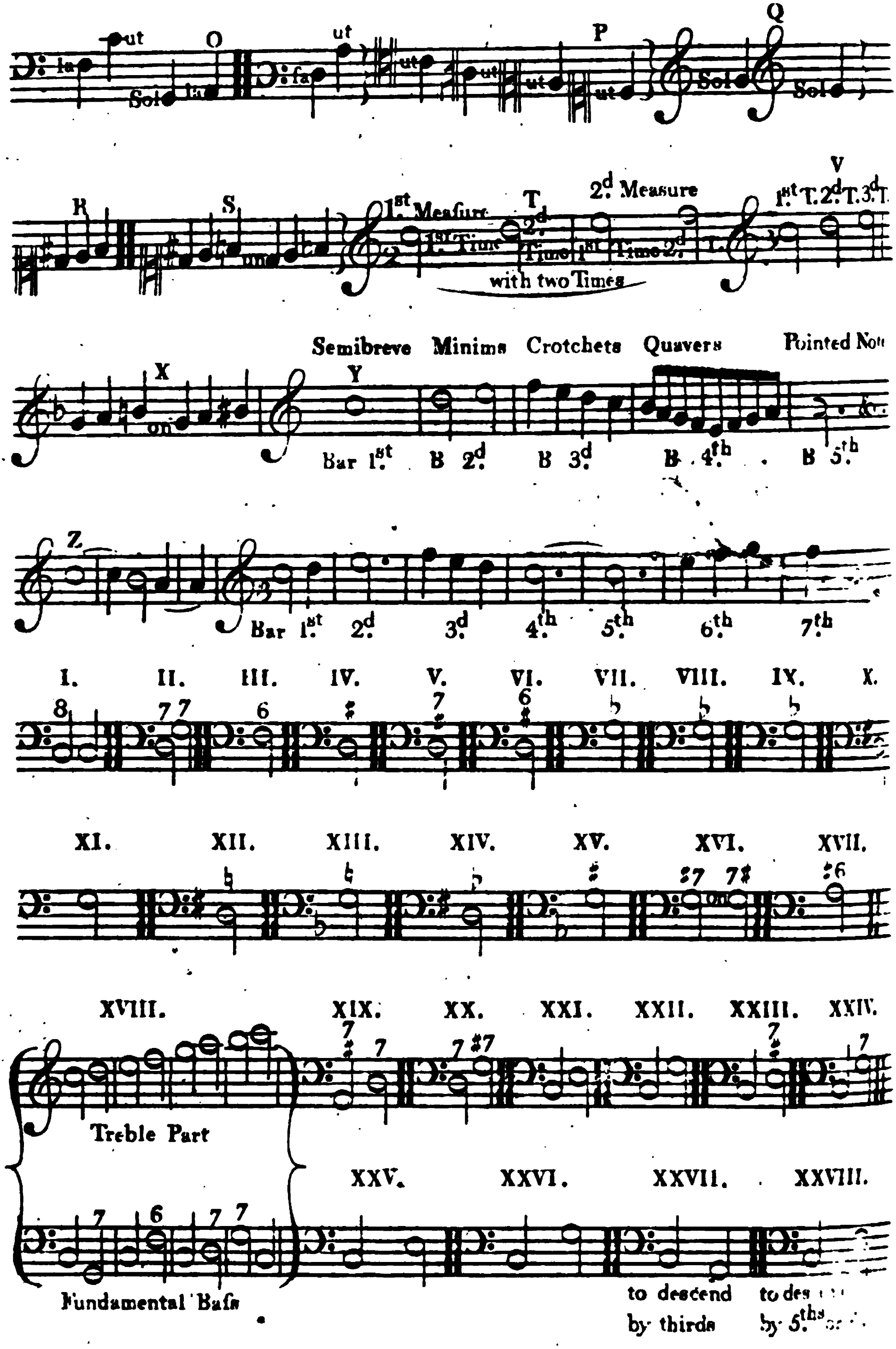
* *See, on this, what is written on the Licence of muſic, printed in tom. iv. of* D'Alembert's *Melanges de Literature, p.* 448.

MUSIC.

Plate CCXXXII



on the fourth line, or on the third; and the line upon which this cleff is placed gives the name of *fa* or *F*, to all the notes which are upon that line. See *fig* O. The cleff of *ut* is placed upon the fourth, the third, the ſecond, or the firſt line; (See *fig*. P.) and in theſe different poſitions all the notes upon that line where the cleff is placed take the name of *ut*, or *C*. See *fig*. Q. Laſtly, the cleff of *ſol* is placed upon the ſecond or firſt line; and all the notes upon that line where the cleff is placed take the name of *ſol*, or *G*.

171. As the notes are placed on the lines, and in the ſpaces between the lines, any one, when he ſees the cleff, may eaſily find the name of any note whatever. (See *fig*. O.) Thus he may ſee, that, in the firſt cleff of *fa*, the note which is placed on the loweſt line ought to be *ſol*; that the note which occupies the ſpace between the two firſt lines ſhould be *la*; and that the note which is on the ſecond line is a *ſi*, &c.

172. A note before which there is a ſharp (marked thus ✻) ought to be raiſed by a ſemitone; and if, on the contrary, there is a ♭ before it, it ought to be depreſſed by a ſemitone, (♭ being the mark of a flat). The natural (marked thus ♮) reſtores to its natural value a note which had been raiſed or depreſſed by a ſemitone.

173. When you place at the cleff a ſharp or a flat, all the notes upon the line on which this ſharp or flat is marked are ſharp or flat. See *fig*. R. Thus let us take, for inſtance, the cleff of *ut* upon the firſt line, and let us place a ſharp in the ſpace between the ſecond and third line, which is the place of *fa*; all the notes which ſhall be marked in that ſpace will be *fa*✻; and if you would reſtore them to their original value of *fa* natural, you muſt place a ♮ or a ♭ before them. See *fig*. S. In the ſame manner, if a flat be marked at the cleff, and if you would reſtore the note to its natural ſtate, you muſt place a ♮ or a ✻ before it. See *fig*. X. *Pl*. CCXXXII.

174. Every piece of muſic is divided into different equal times, which they call *meaſures* or *bars*; and each bar is likewiſe divided into different times. There are properly two kinds of meaſures or modes of time, (See T.); the meaſure of two times, or of common time, which is marked by the figure 2 placed at the beginning of the tune; and the meaſure of three times, or of triple time, which is marked by the figure 3 placed in the ſame manner. (See *fig*. V.) The different bars are diſtinguiſhed by perpendicular lines. In a bar we diſtinguiſh between the *perfect* and *imperfect* time; the *perfect* time is that which we *beat*, the *imperfect* that in which we *lift up the hand or foot*. A bar conſiſting of four times ought to be regarded as compounded of two bars, each conſiſting of two times: thus there are in this bar two perfect and two imperfect times. In general, by the words *perfect* and *imperfect* even the parts of the ſame time are diſtinguiſhed: thus the firſt note of each time is reckoned as belonging to the *perfect* part, and the others as belonging to the *imperfect*. (See *fig*. Y.)

175. The longeſt of all notes is a ſemibreve. A minum is half its value; that is to ſay, in ſinging, we only employ the ſame duration in performing two minims which was occupied in one ſemibreve. A minim in the ſame manner is equivalent to two crotchets, the crotchet to two quavers, &c.

176. A note which is divided into two parts by a time, that is to ſay, which begins at the end of a time, and terminates in the time following, is called a *ſyncopated note*. (See *fig*. Z; where the notes *ut*, *ſi*, *la*, are each of them ſyncopated. See alſo SYNCOPATION.)

177. A note followed by a point or dot is increaſed half its value. The *ſi*, for inſtance, in the fifth bar of the example Y, followed by a point, has the value † or duration of a minim and of a crotchet at the ſame time.

CHAP. IV. DEFINITIONS *of the* PRINCIPAL CHORDS.

178. THE chord compoſed of a third, a fifth, and an octave, as *ut mi ſol ut*, is called a *perfect chord* (art. 32.) If the third be major, as in *ut mi ſol ut*, the perfect chord is denominated *major*: if the third be minor, as in *la ut mi la*, the perfect chord is minor. The perfect chord major conſtitutes what we call the *major mode*; and the perfect chord minor, what we term the *minor mode*, (art. 31.)

179. A chord compoſed of a third, a fifth, and a ſeventh, as *ſol ſi re fa*, or *re fa la ut*, &c. is called a *chord of the ſeventh*. It is obvious that ſuch a chord is wholly compoſed of thirds in aſcending. All chords of the ſeventh are practiſed in harmony, ſave that which might carry the third minor and the ſeventh major, as *ut mi*♭ *ſol ſi*; and that which might carry a falſe fifth and a ſeventh major, as *ſi re fa la*✻, (*chap*. xiv. Part I.)

180. As thirds are either major or minor, and as they may be differently arranged, it is clear that there are different kinds of chords of the ſeventh; there is even one, *ſi re fa la*, which is compoſed of a third, a falſe fifth, and a ſeventh.

181. A chord compoſed of a third, a fifth, and a ſixth, as *fa la ut re*, *re fa la ſi*, is called a *chord of the greater ſixth*.

182. Every note which carries a perfect chord is called a *tonic*, and a perfect chord is marked by an 8, by a 3, or by a 5, which is written above the note; but frequently theſe numbers are ſuppreſſed. Thus in the example I. the two *uts* equally carry a perfect chord.

183. Every note which carries a chord of the ſeventh is called a *dominant* (art. 102); and this chord is marked by a 7 written above the note. Thus in the example II. *re* carries the chord *re fa la ut*, and *ſol* the chord *ſol ſi re fa*.—Among the chords of the ſeventh we do not reckon the chord

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† *To prevent ambiguity, it is neceſſary to mention, that we have followed M. D'Alembert in his double ſenſe of the word* VALUE, *though we wiſh he had diſtinguiſhed the different meanings by different words. A ſound may be either eſtimated by its different degrees of intenſeneſs, or by its different quantities of duration. To ſignify both theſe ideas the word* value *is employed by D'Alembert. The reader, therefore, will find it of importance to diſtinguiſh the value of a note in* height *from its value in* duration. *This he may eaſily do, by conſidering whether the notes are treated as parts of the diatonic ſcale, or as continued for a greater or leſſer duration.*

of the ſeventh diminiſhed, which is only improperly called *a chord of the ſeventh;* and of which we ſhall ſay more below.

184. Every note which carries the chord of the great ſixth, is called a *ſubdominant,* (art. 97, and 42.) and is marked with a 6. Thus in the example III. *fa* carries the chord of *fa la ut re*. You ought to remark that the ſixth ſhould always be major, (art. 97, and 109).

185. In every chord, whether perfect, or a chord of the ſeventh, or of the great ſixth, the note which carries this chord, and which is the flatteſt or loweſt, is called the *fundamental note.* Thus *ut* in the example I. *re* and *ſol* in the example II. and *fa* in the example III. are fundamental notes. (See FUNDAMENTAL, § 4, 5.)

186. In every chord of the ſeventh, and of the great ſixth, the note which forms the ſeventh or ſixth above the fundamental, that is to ſay, the higheſt note of the chord, is called a *diſſonance.* Thus in the chords of the ſeventh *ſol ſi re fa, re fa la ut, fa* and *ut* are the diſſonances, viz. *fa* with relation to *ſol* in the firſt chord, and *ut* with relation to *re* in the ſecond. In the chord of the great ſixth *fa la ut re, re* is the diſſonance, (art. 120.); but that *re* is only, properly ſpeaking, a diſſonance with relation to *ut,* from which it is a *ſecond,* and not with reſpect to *fa,* from which it is a *ſixth major* (art 17, and 18).

187. When a chord of the ſeventh is compoſed of a third major followed by two thirds minor, the fundamental note of this chord is called the *tonic dominant.* In every other chord of the ſeventh the fundamental is called the *ſimple dominant,* (art. 102.) Thus in the chord *ſol ſi re fa,* the fundamental *ſol* is the *tonic dominant;* but in the other chords of the ſeventh, as *ut mi ſol ſi, re fa la ut,* &c. the fundamentals *ut* and *re* are *ſimple dominants.*

188. In every chord, whether perfect, or of the ſeventh, or of the ſixth, if you have a mind that the third above the fundamental note ſhould be major, though it is naturally minor, you muſt place a ſharp above the fundamental note. For example, if I would mark the perfect major chord *re fa♯ la re,* as the third *fa* above *re* is naturally minor, I place above *re* a ſharp, as you may ſee in example IV. In the ſame manner the chord of the ſeventh *re fa♯ la ut,* and the chord of the great ſixth *re fa♯ la ſi,* is marked with a ♯ above *re,* and above the ♯ a 7 or a 6, (ſee V. and VI.) On the contrary, when the third is naturally major, and if you incline to render it minor, you muſt place above the fundamental note a ♭. Thus the examples VII, XIII, IX, ſhow the chords *ſol ſi♭ re ſol, ſol ſi♭ re fa, ſol ſi♭ re mi.* See *Pl.* CCXXXII.

CHAP. V. *Of the* FUNDAMENTAL BASS.

189. INVENT a modulation at your pleaſure; and under this modulation let there be ſet a baſs compoſed of different notes, of which ſome may carry a perfect chord, others that of the ſeventh, and others that of the great ſixth, in ſuch a manner that each note of the modulation which anſwers to each of the baſs, may be one of thoſe which enters into the chord of that note in the baſs; this baſs being compoſed according to the rules which ſhall be immediately given, will be the *fundamental baſs* of the modulation propoſed. See Part I. where *the nature and principles of the fundamental baſs* are explained: alſo FUNDAMENTAL, § 3. Thus (Exam. XVIII.) you will find that this modulation, *ut re mi fa ſol la ſi ut,* has or may admit for its fundamental baſs, *ut* $\overset{7}{\textit{ſol}}$ *ut* $\overset{6}{\textit{fa}}$ $\overset{7}{\textit{ut}}$ $\overset{7}{\textit{re}}$ *ſol ut.* In reality, the firſt note *ut* in the upper part is found in the chord of the firſt note *ut* in the baſs, which chord is *ut mi ſol ut;* the ſecond note *re* in the treble is found in the chord *ſol ſi re fa,* which is the chord of the ſecond note in the baſs, &c. and the baſs is compoſed only of notes which carry a perfect chord, or that of the ſeventh, or that of the great ſixth. Moreover, it is formed according to the rules which we are now about to give.

CHAP. VI. RULES *for the* FUNDAMENTAL BASS.

190. ALL the notes of the fundamental baſs being only capable of carrying a perfect chord, or the chord of the ſeventh, or that of the great ſixth, are either tonics, or dominants, or ſubdominants; and the dominants may be either ſimple or tonic. The fundamental baſs ought always to begin with a tonic, as much as it is practicable. And now follow the rules for all the ſucceeding chords; rules which are evidently derived from the principles eſtabliſhed in the *Firſt Part* of this treatiſe. To be convinced of this, we ſhall find it only neceſſary to review the articles 34, 91, 122, 124, 126, 127.

191. RULE I. In every chord of the tonic, or of the tonic dominant, it is neceſſary that at leaſt one of the notes which form that chord ſhould be found in the chord that precedes it.

192. RULE II. In every chord of the ſimple dominant, it is neceſſary that the note which conſtitutes the ſeventh, or diſſonance, ſhould likewiſe be found in the preceding chord.

193. RULE III. In every chord of the ſub-dominant, at leaſt one of its conſonances muſt be found in the preceding chord. Thus, in the chord of the ſub-dominant *fa la ut re,* it is neceſſary that *fa la,* or *ut,* which are the conſonances of the chord, ſhould be found in the chord preceding. The diſſonance *re* may either be found in it or not.

194. RULE IV. Every ſimple or tonic dominant ought to deſcend by a fifth. In the firſt caſe, that is to ſay, when the dominant is ſimple, the note which follows can only be a dominant; in the ſecond it may be any one you chooſe; or, in other words, it may either be a tonic, a tonic dominant, or a ſimple dominant, or a ſub-dominant. The conditions preſcribed in the ſecond rule ſhould be obſerved, if it be a ſimple dominant. For let us aſſume the ſucceſſion of the two chords *la ut mi ſol, re fa la ut,* (ſee Exam. XIX.), this ſucceſſion is by no means legitimate, though in it the firſt dominant deſcends by a fifth; becauſe the *ut* which forms the diſſonance in the ſecond chord, and which belongs to a ſimple dominant, is not in the preceding chord. But the ſucceſſion will be admiſſible, if, without meddling with the ſecond chord, one ſhould take away the ſharp carried by the *ut* in the firſt; or if, without meddling with the firſt chord, one ſhould render *ut* or

note *mi* is marked with a 6. (See LVI.) 2. *Sol ut mi ſol*, which we call a *chord of the ſixth and fourth*, compoſed of a fourth, a ſixth, and an octave; and it is marked with a $\substack{6\\4}$. (See LVII.) The perfect minor chord is inverted in the ſame manner.

206. Ways *in which the* Chords *of the* Seventh *may be* Inverted. In the chord of the tonic dominant, as *ſol ſi re fa*, the third major *ſi* above the fundamental note *ſol*, is called a *ſenſible note* (77.); and the inverted chord *ſi re fa ſol*, compoſed of a third, a falſe fifth, and ſixth, is called the *chord of the falſe fifth*, and is marked with an 8 or ♭5 (ſee LVIII. and LIX.) The chord *re fa ſol ſi*, compoſed of a third, a fourth, and a ſixth, is called the *chord of the ſenſible ſixth*, and marked with a 6 or a ⋇6. In this chord thus figured, the third is minor and the ſixth major, as it is eaſy to be perceived. (See LX.) The chord *fa ſol ſi re*, and compoſed of a ſecond, a triton, and a ſixth, is called the *chord of the triton*, and is marked thus 4+, thus ×4, or thus ⋇4. See LXI.

207. In the chord of the ſimple dominant *re fa la ut*, we find, 1. *Fa la ut re*, a chord of the great ſixth, which is compoſed of a third, a fifth, and a ſixth, and which is figured with a $\substack{6\\5}$. See LXIII. 2. *La ut re fa*, a chord of the leſſer ſixth which is figured with a 6. (See LXIV.) 3. *Ut re fa la*, a chord of the ſecond, compoſed of a ſecond, a fourth, and a ſixth, and which is marked with a 2. (See LXII.)

208. Ways *in which the* Chord *of the* Sub-dominant *may be* inverted. The chord of the ſubdominant, as *fa la ut re*, may be inverted in three different manners; but the method of inverting it which is moſt in practice is the chord of the leſſer ſixth *la ut re fa*, which is marked with a 6, and the chord of the ſeventh *re fa la ut*. (See LXIV.)

209. Rules *for the* Continued Bass. The continued baſs is a fundamental baſs, whoſe chords are only inverted in order to render it more in the taſte of ſinging, and ſuitable to the voice. See LXV. in which the fundamental baſs which in itſelf is monotonic and little ſuited for ſinging, *ut ſol ut ſol ut ſol ut* produces, by inverting its chords, this continued baſs highly proper to be ſung, *ut ſi ut re mi fa mi*, &c. The continued baſs then is properly nothing elſe but a treble with reſpect to the fundamental baſs.

210. Rule I. Every note which carries the chord of the falſe fifth, and which of conſequence muſt be what we have called a *ſenſible note*, ought (77.) to riſe diatonically upon the note which follows it. Thus in example LXV. the note *ſi* carrying the chord of the falſe fifth marked with an 8, riſes diatonically upon *ut*.

211. Rule II. Every note carrying the chord of the triton ſhould deſcend diatonically upon the ſubſequent note. Thus in the ſame example LXV. *fa*, which carries the chord of the triton figured with a 4+ deſcends diatonically upon *mi*. (Art. 202.)

212. Rule III. The chord of the ſecond is commonly put in practice upon notes which are ſyncopated in deſcending, becauſe theſe notes are diſſonances which ought to be prepared and reſolved (200, 202.) See the example LXVI. where the ſecond *ut*, which is ſyncopated, and which deſcends afterwards upon *ſi*, carries the chord of the ſecond.

Chap. IX. *Of ſome* Licences *aſſumed in the* Fundamental Bass.

213. § 1. *Of* Broken *and* Interrupted Cadences.—The broken cadence is executed by means of a dominant which riſes diatonically upon another, or upon a tonic by a licence. See in the example LXXIV, *ſol la*, (132 and 134.)

214. The interrupted cadence is formed by a dominant which deſcends by a third upon another, (136). See, in the example LXXV, *ſol mi*. Theſe cadences ought to be permitted but rarely and with precaution. (See *Plate* 234.)

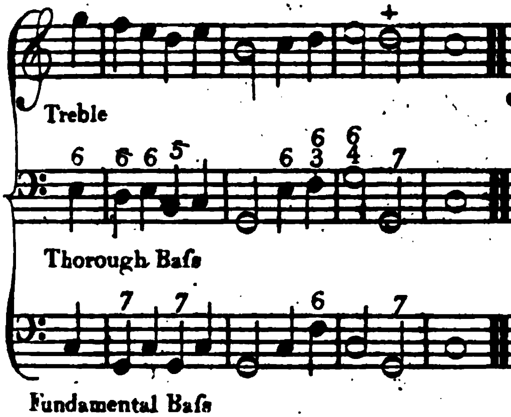
215. § 2. *Of* Supposition. When a dominant is preceded by a tonic in the fundamental baſs, we add ſometimes, in the continued baſs to the chord of that dominant a new note, which is a third or a fifth below; and the chord which reſults from it in this continued baſs is called a *chord by ſuppoſition*. (See Supposition, § 2.) For example, let us ſuppoſe, that in the fundamental baſs we have a dominant *ſol* carrying the chord of the ſeventh *ſol ſi re fa*; let us add to this chord the note *ut*, which is a fifth below this dominant, and we ſhall have the total chord *ut ſol ſi re fa*, or *ut re fa ſol ſi*, which is called *a chord by ſuppoſition*.

216 *Of the* different kinds *of* chords *by* supposition. It is eaſy to perceive, that chords by ſuppoſition are of different kinds. For inſtance, the chord of the tonic *ſol ſi re fa* gives, 1. By adding the fifth *ut*, the chord *ut ſol ſi re fa*, called a *chord of the ſeventh redundant*, and compoſed of a fifth, ſeventh, ninth, and eleventh. It is figured with a ⋇ 7; ſee LXXVI. This chord is not practiſed but upon the tonic. They ſometimes leave out the ſenſible note; it is then reduced to *ut fa ſol re*, and marked with $\substack{5\\4}$ or $\substack{5\\2}$. 2. By adding the third *mi*, we ſhall have the chord *mi ſol ſi re fa*, called a *chord of the ninth*, and compoſed of a third, fifth, ſeventh, and ninth. It is figured with a 9. This third may be added to every third of the dominant. See LXXVII. 3. If to a chord of the ſimple dominant, as *re fa la ut*, we ſhould add the fifth *ſol*, we would have the chord *ſol re fa la ut*, called a *chord of the eleventh*, and which is figured with a $\substack{9\\4}$ or $\substack{4\\9}$. See LXXVIII.

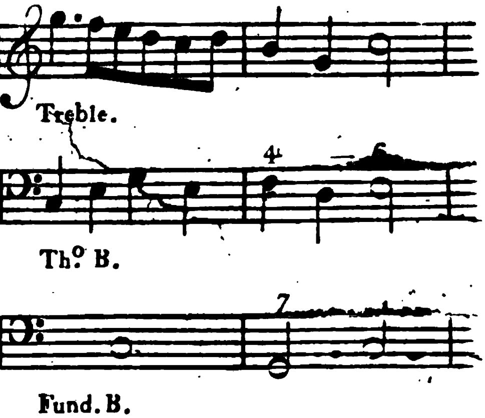
217. Observe. When the dominant is not a tonic dominant, they often take away ſome notes from the chord. For example, let us ſuppoſe that there is in the fundamental baſs this ſimple dominant *mi*, carrying the chord *mi ſol ſi re*; if there ſhould be added the third *ut* beneath, we ſhall have this chord of the continued baſs *ut mi ſol ſi re*; but they ſuppreſs the ſeventh *ſi*, becauſe in retaining it we ſhould deſtroy the effect of the ſenſible note *ſi*, which ought to riſe to *ut*. In this ſtate the chord is ſimply compoſed of a third, fifth, and ninth, and is marked with a 9. See LXXIX. *Plate* 234.

218. In the chord of the ſimple dominant, as *re fa la ut*, when the fifth *ſol* is added, they frequently obliterate the ſounds *fa* and *la*, that too great a number of diſſonances may be avoided, which reduces the chord to *ſol ut re*. This laſt is compoſed only of the fourth and the fifth. It is called

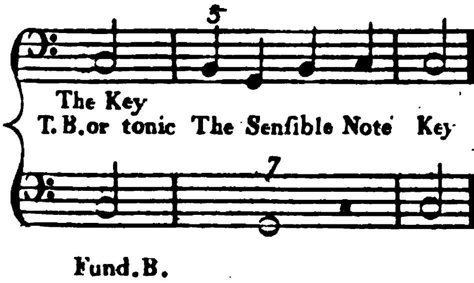
LXVII.



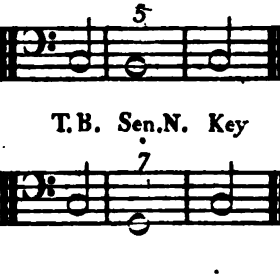
LXVIII.



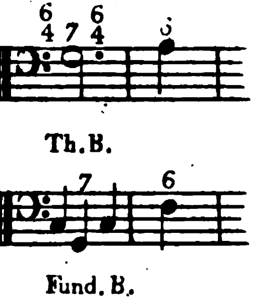
LXIX.



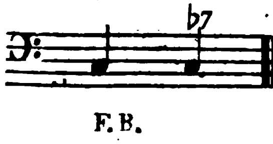
LXX.



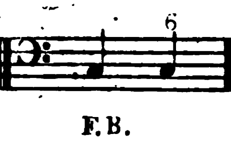
LXXI.



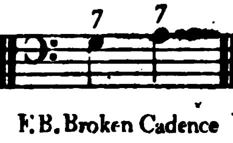
LXXII



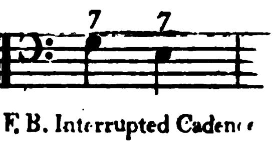
LXXIII



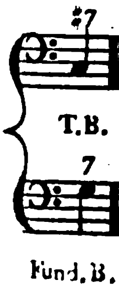
LXXIV



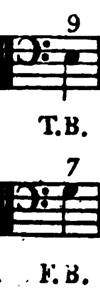
LXXV



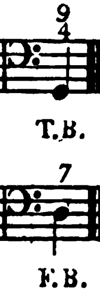
LXXVI.



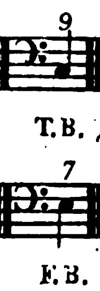
LXXVII.



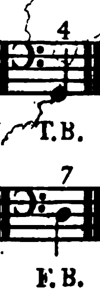
LXXVIII.



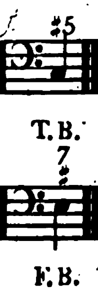
LXXIX.



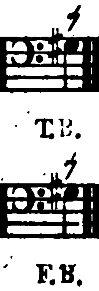
LXXX.



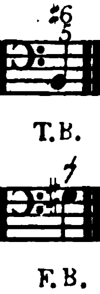
LXXXI.



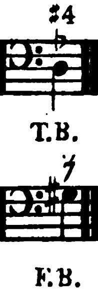
LXXXII.



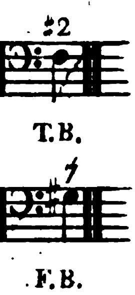
LXXXIII.



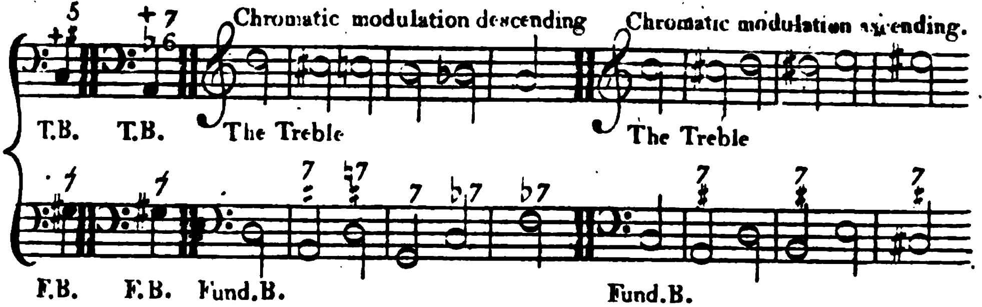
LXXXIV.



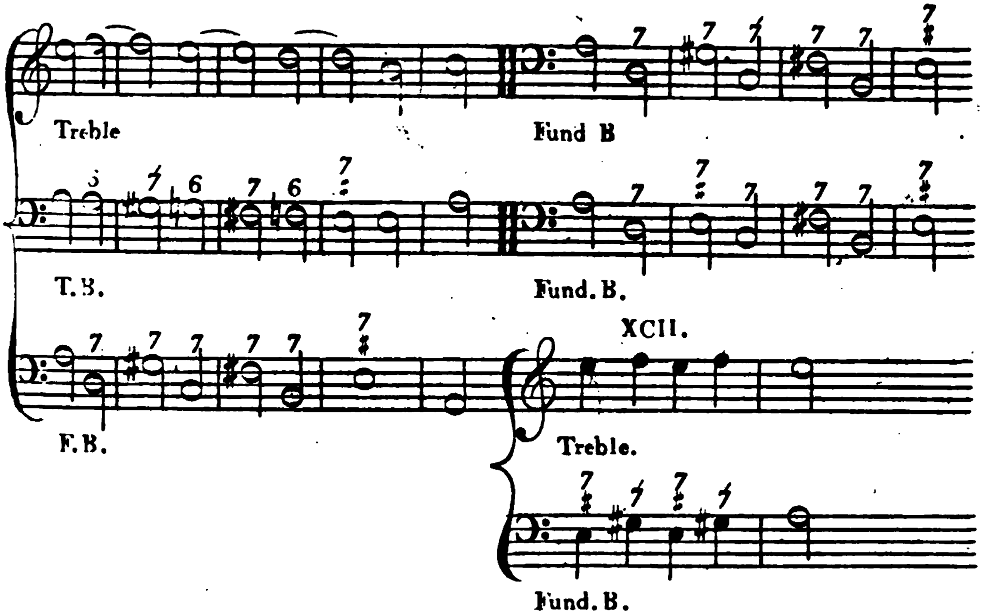
LXXXV.



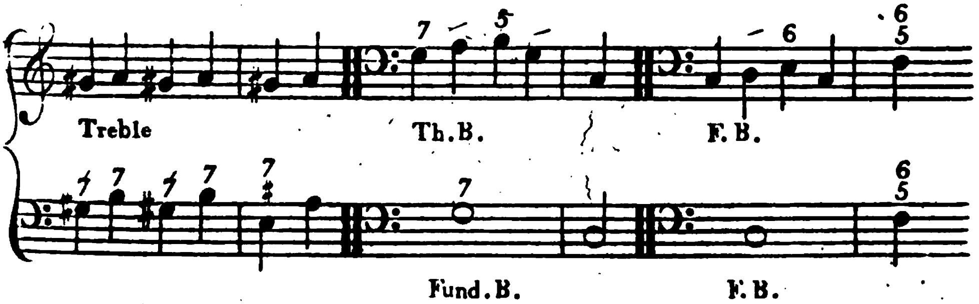
LXXXVI. LXXXVII. LXXXVIII. LXXXIX.


Chromatic modulation descending
Chromatic modulation ascending.
T.B.
T.B.
The Treble
The Treble
F.B.
F.B.
Fund.B.
Fund.B.

XC. XCI. XCII.



XCIII. XCIV. XCV.



BLIOTHE

called a *chord of the fourth*, and it is figured with a 4. (See LXXX.)

219. Sometimes they only remove the note *la*, and then the chord ought to be figured with $^{7}_{4}$ or $^{4}_{7}$.

220. In the minor mode, for example, in that of *la*, where the chord of the tonic dominant (109), is *mi ſol※ ſi re*; if we add to this chord the third *ut* below, we ſhall have *ut mi ſol※ ſi re*, called the *chord of the fifth redundant*, and compoſed of a third, a fifth redundant, a ſeventh, and a ninth. It is figured with a ※ 5, or a + 5, See LXXXI.

221. § 3. *Of the* Chord *of the* Diminished Seventh. In the minor mode, for inſtance, in that of *la mi*, a fifth from *la* is the tonic dominant (109), and carries the chord *mi ſol※ ſi re*, in which *ſol* is the ſenſible note. For this chord they ſometimes ſubſtitute that other *ſol※ ſi re fa* (166), all compoſed of minor thirds; and which has for its fundamental ſound the ſenſible note *ſol※*. This chord is called a *chord of the flat, or diminiſhed ſeventh*, and is figured with a $\not 7$ in the fundamental baſs, (ſee LXXXII.): but it is always conſidered as repreſenting the chord of the tonic dominant.

222. This chord in the fundamental baſs produces in the continued baſs the following chords: 1. The chord *ſi re fa ſol ※*, compoſed of a third, falſe fifth, and ſixth major. They call it the *chord of the ſixth ſenſible and falſe fifth*; and it is figured thus ※$^{6}_{5}$, or +$^{6}_{5}$. (See LXXXIII.) 2. The chord *re fa ſol※ ſi*, compoſed of a third, a triton, and a ſixth, they call it the *chord of the triton and third minor*; and they mark it thus $\overset{4}{※}\flat$. (See LXXXIV.) 3. The chord *fa ſol※ ſi re*, compoſed of a ſecond redundant, a triton and a ſixth, they call it the *chord of the ſecond redundant*, and they figure it thus ※2, or +2. See LXXXV.

223. Beſides, ſince the chord *ſol※ ſi re fa* repreſents the chord *mi ſol※ ſi re*, it follows, that if we operate by ſuppoſition upon the firſt of theſe chords, it muſt be performed as one would perform it upon *mi ſol ſi re*; that is to ſay, that it will be neceſſary to add to the chord *ſol※ ſi re fa*, the notes *ut* or *la*, which are the third or fifth below *mi*, and which will produce, 1. By adding *ut*, the chord *ut ſol※ ſi re fa*, compoſed of a fifth redundant, a ſeventh, a ninth, and eleventh, which is the octave of the fourth. It is called a *chord of the fifth redundant and fourth*, and thus marked +$^{5}_{4}$, or ※$^{5}_{4}$. (See LXXXVI.) 2. By adding *la*, we ſhall have the chord *la ſol※ ſi re fa*, compoſed of a ſeventh redundant, a ninth, an eleventh, and a thirteenth minor, which is the octave of the ſixth minor. It is called the *chord of the ſeventh redundant and ſixth minor*, and marked $\flat\overset{7}{6}$, or $※\overset{7}{\flat}$. (See LXXXVII.) It is of all chords the moſt harſh, and the moſt rarely practiſed. In the *Treatiſe of Harmony* by M. Rameau, and elſewhere, may be ſeen a much longer detail of the chords by ſuppoſition: But here we delineate the elements alone. (See *Plate* 235.)

Chap. X. *Of ſome* Licences *uſed in the* Treble *and* Continued Bass.

224. I. Sometimes in a treble, the diſſonance which ought to have been reſolved by deſcending diatonically upon the ſucceeding note, inſtead of deſcending, on the contrary riſes diatonically: but in that caſe, the note upon which it ought to have deſcended muſt be found in ſome of the other parts. This licence ought to be rarely practiſed. In like manner, in a continued baſs, the diſſonance in a chord of the ſub-dominant inverted, as *la* in the chord *la ut mi ſol*, inverted from *ut mi ſol la*, may ſometimes deſcend diatonically inſtead of riſing as it ought to do, art. 129. N° 2; but in that caſe the note ought to be repeated in another part, that the diſſonance may be there reſolved in aſcending.

225. II. Sometimes likewiſe, to render a continued baſs more agreeable by cauſing it to proceed diatonically, they place between two ſounds of that baſs a note which belongs to the chord of neither. See example XCIV, in which the fundamental baſs *ſol ut* produces the continued baſs *ſol la ſi ſol ut*, where *la* is added on account of the diatonic modulation. This *la* has a line drawn above it to ſhow its reſolution by paſſing under the chord *ſol ſi re fa*. In the ſame manner, (ſee XCV.) this fundamental baſs *ut fa* may produce the continued baſs *ut re mi ut fa*, where the note *re* which is added paſſes under the chord *ut mi ſol ut*.

Chap. XI. Method *of finding the* Fundamental Bass, *when the* Continued Bass *is* Figured.

226. To exerciſe yourſelf with greater eaſe in finding the fundamental baſs, and to render it more familiar to you, it is neceſſary to obſerve how eminent maſters, and above all how M. Rameau has put the rules in practice. Now, as they never place any thing but the continued baſs in their works, it becomes then neceſſary to know how to find the fundamental baſs when the continued baſs is figured. This problem may be eaſily ſolved by the following rules.

227. 1. Every note which has no figure in the continued baſs ought to be the ſame, and without a figure, in the fundamental baſs; it either is a tonic, or reckoned ſuch. 2. Every note which in the continued baſs carries a 6, ought in the fundamental baſs to give its third below not figured, (See Figured, § 2.) or its fifth below marked with a 7. We ſhall diſtinguiſh theſe two caſes below. (See LVI. and LXV. and the note.*) 3. Every note carrying $^{6}_{4}$ gives in the fundamental baſs its fifth below not figured. (See LVII.) 4. Every note figured with a 7 or a $\not 7$, is the ſame in both baſſes, and with the ſame figure. 5. Every note figured with a 2 gives in the fundamental baſs the diatonic note above figured with a 7. (See LXII.) 6. Every note marked with a 4 gives in the fundamental baſs the diatonic

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* *Theſe may be diſtinguiſhed,* 1. *In obſerving which of the two notes is excluded by the rules of the fundamental baſs.* 2. *If the two notes may with equal propriety be placed in the fundamental baſs, the preference muſt be determined by the tone or mode of the treble in that particular paſſage.*

nic note above, figured with a 7. (See LXI.) 7. Every note figured with an 8 gives its third below figured with a 7. (See LVIII. 8. Every note marked with a 6 gives the fifth below marked with a 7; (See LX.) and it is plain by art. 187, that in the chord of the ſeventh, of which we treat in theſe three laſt articles, the third ought to be major, and the ſeventh minor, this chord of the ſeventh being the chord of the tonic dominant. (See art. 102.) 9. Every note marked with a 9 gives its third above figured with a 7. (See LXXVII and LXXXIX.) 10. Every note marked with a $\begin{smallmatrix}9\\4\end{smallmatrix}$ gives the fifth above figured with a 7. (See LXXVIII.) 11. Every note marked with a ※5, or with a +5, gives the third above figured with a $\overset{7}{※}$. (See LXXXI.) 12. Every note marked with a ※7 gives a fifth above figured with a 7, or with a $\overset{7}{※}$. (See LXXVI.) It is the ſame caſe with the notes marked $\begin{smallmatrix}7\\4\end{smallmatrix}$, $\begin{smallmatrix}5\\4\\2\end{smallmatrix}$, or $\begin{smallmatrix}9\\4\end{smallmatrix}$: which ſhews a retrenchment, either in the complete chord of the eleventh, or in that of the ſeventh redundant. 13. Every note marked with a 4 gives a fifth above figured with a 7, or a $\overset{7}{※}$. (See LXXX.) 14. Every note marked with ※$\begin{smallmatrix}6\\5\end{smallmatrix}$ gives the third minor below, figured with a $\not{7}$. (See LXXXIII.) 13. Every note marked with a $\overset{4}{※\flat}$ gives the triton above figured with a $\not{7}$. (See LXXXIV.) 16. Every note marked with a +2 gives the ſecond redundant above, figured with a $\not{7}$. (See LXXXV.) 17. Every note marked with a ※$\begin{smallmatrix}2\\4\end{smallmatrix}$ gives the ſecond redundant above, figured with a $\not{7}$. (See LXXXVI.) 18. Every note marked with a $\overset{※}{\underset{\flat}{\begin{smallmatrix}7\\6\end{smallmatrix}}}$ gives the ſeventh redundant above, figured with a $\not{7}$. (See LXXXVII.)

228. REMARK. We have omitted two caſes, which may cauſe ſome uncertainty: The firſt is that where the note of the continued baſs is figured with a 6. We now preſent the reaſon of the difficulty. Suppoſe we ſhould have the dominant $\overset{7}{re}$ in the fundamental baſs, the note which anſwers to it in the continued baſs may be *la* carrying the figure 6 (ſee LXIV.); that is, the *la* chord *ut re fa*: now if we ſhould have the ſub-dominant $\overset{6}{fa}$ in the fundamental baſs, this ſub-dominant might produce in the continued baſs the ſame note *la* figured with a 6. When therefore one finds in the continued baſs a note marked with a 6, it appears at firſt uncertain whether we ſhould place in the fundamental baſs the fifth below marked with a 7, or a third below marked with a 6.

229. The 2d caſe is that in which the continued baſs is figured with a $\begin{smallmatrix}6\\5\end{smallmatrix}$. For inſtance, if there ſhould be found $\overset{\begin{smallmatrix}6\\5\end{smallmatrix}}{fa}$ in the continued baſs, one may be ignorant whether he ought to inſert in the fundamental *baſs fa* marked with a 6, or *re* figured with a 7.

230. You may eaſily extricate yourſelf from this little difficulty, in leaving for an inſtant this uncertain note in ſuſpenſe, and in examining what is the ſucceeding note of the fundamental baſs; for if that note be in the preſent caſe a fifth above *fa*, that is to ſay, if it is *ut*, in this caſe, and in this alone, he may place $\overset{6}{fa}$ in the fundament baſs. It is a conſequence of this rule, that in t fundamental baſs every ſub-dominant ought to ri by a fifth, (195.)

CHAP. XII. *What is* MEANT *by* BEING *in a* MOD *or* TONE.

231. IN the firſt part of this treatiſe (chap. vi. we have explained, how, by the means of the not *ut*, and of its two fifths *ſol* and *fa*, one in aſcending, which is called a *tonic dominant*, the other i deſcending, which is called a *ſub-dominant*, th ſcale *ut re mi fa ſol la ſi ut* may be found: the different ſounds which form this ſcale compoſe wha we call the *major mode* of *ut*, becauſe the third *mi* above *ut* is major. If therefore we would hav a modulation in the major mode *ut*, no other ſounds muſt enter into it than thoſe which compoſe this ſcale; in ſuch a manner that if, for inſtance, I ſhould find *fa*※ in this modulation, this *fa*※ diſcovers to me that I am not in the mode of *ut*, or at leaſt that, if I have been in it, I am no longer ſo.

232. In the ſame manner, if I form this ſcale in aſcending *la ſi ut*※ *re mi fa*※ *ſol*※ *la*, which is exactly ſimilar to the ſcale *ut re mi fa ſol la ſi ut* of the major mode of *ut*, this ſcale, in which the third from *la* to *ut*※ is major, ſhall be in the major mode of *la*; and if I incline to be in the minor mode of *la*, I have nothing to do but to ſubſtitute for *ut* ſharp *ut* natural; ſo that the major third *la ut*※ may become minor *la ut*; I ſhall have then *la ſi ut re mi fa*※ *ſol*※ *la*, which is (85.) the ſcale of the minor mode of *la* in aſcending; and the ſcale of the minor mode of *la* in deſcending ſhall be (90) *la ſol fa mi ut re ſi la*, in which the *ſol* and *fa* are no longer ſharp. For it is a ſingularity peculiar to the minor mode, that its ſcale is not the ſame in riſing as in deſcending (89).

233. This is the reaſon why, when we wiſh to begin a piece in the major mode of *la*, we place three ſharps at the cleff upon *fa*, *ut*, and *ſol*; and on the contrary, in the minor mode of *la*, we place none, becauſe the minor mode of *la*, in deſcending, has neither ſharps nor flats.

234. As the ſcale contains twelve ſounds, each diſtant from the other by the interval of a ſemitone, it is obvious that each of theſe ſounds can produce both a major and a minor mode, which conſtitute 24 modes upon the whole. Of theſe we ſhall immediately give a table, which may be very uſeful to diſcover the mode in which we are.

A TABLE *of the* DIFFERENT MODES.

MAJOR MODES.

Maj. Mode.	
of *ut*	*ut re mi fa ſol la ſi ut.*
of *ſol*	*ſol la ſi ut re mi fa*※ *ſol.*
of *re*	*re mi fa*※ *ſol la ſi ut*※ *re.*
of *la*	*la ſi ut*※ *re mi fa*※ *ſol*※ *la.*
of *mi*	*mi fa*※ *ſol*※ *la ſi ut*※ *re*※ *mi.*
of *ſi*	*ſi ut*※ *re*※ *mi fa*※ *ſol*※ *la*※ *ſi.*
of *fa*※	*fa*※ *ſol*※ *ſi ut*※ *re*※ *mi*※ *fa*※.
of *ut*※	*re*♭ *mi*♭ *fa ſol*♭ *la*♭ *ſi*♭ *ut re*♭.
of *re*♭	
of *ſol*※	*la*♭ *ſi*♭ *ut re*♭ *mi*♭ *fa ſol la*♭.
of *la*♭	

of *re*♯ or *mi*♭ } *mi*♭ *fa ſol la*♭ *ſi*♭ *ut re mi*♭

of *la*♯ or *ſi*♭ } *ſi*♭ *ut re mi*♭ *fa ſol la ſi.*

of *mi*♯ or *fa*♭ } *fa ſol la ſi*♭ *ut re mi fa.*

of *ſi*♯ or *ut*♭ } *ut re mi fa ſol la ſi ut.*

Minor Modes.

Of *la.*

In deſcending. *la ſol fa mi re ut ſi la.*
In riſing. *la ſi ut re mi fa*♯ *ſol*♯ *la.*

Of *mi.*

In deſcending. *mi re ut ſi la ſol fa*♯ *mi.*
In riſing. *mi fa*♯ *ſol la ſi ut*♯ *re*♯ *mi.*

Of *ſi.*

In deſcending. *ſi la ſol fa*♯ *mi re ut*♯ *ſi.*
In riſing. *ſi ut*♯ *re mi fa*♯ *ſol*♯ *la*♯ *ſi.*

Of *fa*♯.

In deſcending. *fa*♯ *mi re ut*♯ *ſi la ſol*♯ *fa.*
In riſing. *fa*♯ *ſol*♯ *la ſi ut*♯ *re*♯ *mi*♯ *fa*♯.

Of *ut*♯.

In deſcending. *ut ſi la ſol*♯ *fa*♯ *mi*♯ *ut*♯.
In riſing. *ut*♯ *re*♯ *mi fa*♯ *ſol*♯ *la*♯ *ſi*♯ *ut*♯.

Of *ſol*♯ or *la*♭.

In deſcending. *ſol*♯ *fa*♯ *mi ut*♯ *ſi la*♯ *ſol*♯.
In riſing. *la*♭ *ſi*♭ *ut*♭ *re*♭ *mi*♭ *fa ſol la*♭.

Of *re*♯ or *mi*♭.

In deſcending. *mi*♭ *re*♭ *ut*♭ *ſi*♭ *la*♭ *ſol*♭ *fa mi*♭.
In riſing. *mi*♭ *fa ſol*♭ *la*♭ *ſi*♭ *ut re mi*♭.

Of *la*♯ or *ſi*♭.

In deſcending. *ſi*♭ *la*♭ *ſol*♭ *fa mi*♭ *re*♭ *ut ſi*♭.
In riſing. *ſi*♭ *ut re*♭ *mi*♭ *fa ſol la ſi*♭.

Of *mi*♯ or *fa*♭.

In deſcending. *fa mi*♭ *re*♭ *ut ſi*♭ *la*♭ *ſol fa.*
In riſing. *fa ſol la*♭ *ſi*♭ *ut re mi fa.*

Of *ut.*

In deſcending. *ut ſi*♭ *la*♭ *ſol fa mi*♭ *re ut.*
In riſing. *ut re mi*♭ *fa ſol la ſi ut.*

Of *ſol.*

In deſcending. *ſol fa mi*♭ *re ut ſi*♭ *la ſol.*
In riſing. *ſol la ſi*♭ *ut re mi fa*♯ *ſol.*

Of *re.*

In deſcending. *re ut ſi*♭ *la ſol fa mi re.*
In riſing. *re mi fa ſol la ſi ut*♯ *re.*

235. Theſe then are all the modes, as well major as minor. Thoſe which are crowded with ſharps and flats are little practiſed, as being extremely difficult in execution.

236. From thence it follows, 1. That when there are neither ſharps nor flats at the cleff, it is a token that the piece begins in the major mode of *ut*, or in the minor mode of *la*. 2. That when there is one ſingle ſharp, it will always be placed upon *fa*, and that the piece begins in the major mode of *ſol*, or the minor of *mi*, in ſuch a manner that it may be ſung as if there were no ſharp, by ſinging *ſi* inſtead of *fa*♯, and in ſinging the tune as if it had been in another cleff. For inſtance, let there be a ſharp upon *fa* in the cleff of *ſol* upon the firſt line; one may then ſing the tune as if there were no ſharp: And inſtead of the cleff of *ſol* upon the firſt line, let there be the cleff of *ut*; for the *fa*♯ when changed into *ſi*, will require that the cleff of *ſol* ſhould be changed to the cleff of *ut*, as may be eaſily ſeen. This is what we call Transposition. See that article, § 3.

237. It is evident, that when *fa*♯ is changed into *ſi*, *ſol* muſt be changed into *ut*, and *mi* into *la*. Thus by tranſpoſition, the air has the ſame melody as if it were in the major mode of *ut*, or in the minor mode of *la*. The major mode then of *ſol*, and the minor of *mi*, are by tranſpoſition reduced to thoſe of *ut* major, and of *la* minor. It is the ſame caſe with all the other modes.

Chap. XIII. *To find the* Fundamental Bass *of a* given modulation.

238. As we have reduced to a very ſmall number the rules of the fundamental baſs, and thoſe which in the treble ought to be obſerved with relation to this baſs, it ſhould no longer be difficult to find the fundamental baſs of a given modulation, nay, frequently to find ſeveral; for every fundamental baſs will be legitimate, when it is formed according to the rules which we have given (Chap. VI.); and that, beſides this, the diſſonances which the modulation may form with this baſs will both be prepared, if it is neceſſary that they ſhould be ſo, and always reſolved.

239. It is of the greateſt utility in ſearching for the fundamental baſs, to know what is the tone or mode of the melody to which that baſs ſhould correſpond.—But it is difficult in this matter to aſſign general rules, and ſuch as are abſolutely without exception, in which nothing may be left that appears indifferent or diſcretionary; becauſe ſometimes we ſeem to have the free choice of referring a particular melody either to one mode or another. For example, this melody *ſol ut* may belong to all the modes, as well major as minor, in which *ſol* and *ut* are found together; and each of theſe two ſounds may even be conſidered as belonging to a different mode.

240. For what remains, one may ſometimes operate without the knowledge of the mode, for two reaſons: 1. Becauſe, ſince the ſame ſounds belong to ſeveral different modes, the mode is ſometimes conſiderably undetermined; above all, in the middle of a piece, and during the time of one or two bars. 2. Without giving ourſelves much trouble about the mode, it is often ſufficient to preſerve us from deviating in compoſition, if we obſerve in the ſimpleſt manner the rules above preſcribed (chap. VI.) for the procedure of the fundamental baſs.

241. In the mean time, it is above all things neceſſary to know in what mode we operate at the beginning of the piece, becauſe it is indiſpenſable that the fundamental baſs ſhould begin in the ſame mode, and that the treble and baſs ſhould likewiſe end in it; nay, that they ſhould even terminate in its fundamental note, which in the mode of *ut* is *ut*, and *la* in that of *la*, &c. Beſides, in thoſe paſſages of the modulation where there is a cadence, it is generally neceſſary that the mode of the fundamental baſs ſhould be the ſame with that of the part to which it correſponds.

242. To know upon what mode or in what key a piece commences, our inquiry may be entirely reduced to diſtinguiſh the major mode of *ut* from the minor of *la*. For we have ſeen (art. 236. and 237.), that all the modes may be reduced to theſe two, at leaſt in the beginning of the piece. We ſhall now therefore give a detail of the different means by which theſe two modes may be diſtinguiſhed.

1. From the principal and characteriſtical ſounds of the mode, which are *ut mi ſol* in the one, and *la ut mi* in the other; ſo that if a piece ſhould, for inſtance, begin thus, *la ut mi la*, it may be almoſt conſtantly concluded, that the tone or mode is in *la* minor, although the notes *la ut mi* belong to the mode of *ut*.

2. From the ſenſible note, which is *ſi* in the one, and *ſol*※ in the other; ſo that if *ſol*※ appears in the firſt bars of a piece, one may be certain that it is in the mode of *la*.

3. From the adjuncts of the mode, that is to ſay, the modes of its two fifths, which for *ut* are *fa* and *ſol*, and *re* and *mi* for *la*. For example, if, after having begun a melody by ſome of the notes which are common to the modes of *ut* and of *la* (as *mi re mi fa mi re ut ſi ut*), I ſhould afterwards find the mode of *ſol*, which I aſcertain by the *fa*※, or that of *fa*, which I aſcertain by the *ſi*♭ or *ut*♮, I may conclude that I have begun in the mode of *ut*; but if I find the mode of *re*, or that of *mi*, which I aſcertain by *ſi*♭, *ut*※, or *re*※, &c. I conclude from thence, that I have begun in the mode of *la*.

4. A mode is not for ordinary deſerted, eſpecially in the beginning of a piece, but that we may paſs into one or other of theſe modes which are moſt relative to it, which are the mode of its fifth above, and that of its third below, if the original mode be major, or of its third above if it be minor. Thus, for inſtance, the modes which are moſt intimately relative to the major mode of *ut*, are the major mode of *ſol*, and that of *la* minor. From the mode of *ut* we commonly paſs either into the one or the other of theſe modes, ſo that we may ſometimes judge of the principal mode in which we are, by the relative mode which follows it, or which goes before it, when theſe relative modes are deciſively marked. For what remains, beſides theſe two relative modes, there are likewiſe two others into which the principal mode may paſs, but leſs frequently, viz. the mode of its fifth below, and that of its third above, as *fa* and *mi* for the mode of *ut*.

5. The modes may ſtill be likewiſe diſtinguiſhed by the cadences of the melody. Theſe cadences ought to occur at the end of every two, or at moſt of every four bars, as in the fundamental baſs; now the note of the fundamental baſs which is moſt ſuitable to theſe cloſes is always eaſy to be found. For the ſounds which occur in the treble may be conſulted M. Rameau, p. 54. of his *Nouveau Syſteme de Muſique theorique et pratique*.

When a perſon is once able to aſcertain the mode, and can render himſelf ſure of it by the different means which we have pointed out, the fundamental baſs will coſt little pains; for in each mode there are three fundamental ſounds.

1. The tonic of the mode, or its principal ſound, which carries always the perfect chord major or minor, according as the mode itſelf is major or minor.

Major mode of UT. *ut mi ſol ut.*
Minor mode of LA. *la ut mi la.*

2. The tonic dominant, which is a fifth above the tonic, and which, whether in the major or minor mode, always carries a chord of the ſeventh, compoſed of a third major, followed by two thirds minor.

Tonic dominant.
Major mode of UT. *ſol ſi re fa.*
Tonic dominant.
Minor mode of LA. *mi ſol*※ *ſi re.*

3. The ſub-dominant, which is a fifth below the tonic, and which carries a chord compoſed of a third, fifth, and ſixth major, the third being either greater or leſſer, according as the mode is major or minor.

Sub-dominant.
Major mode of UT. *fa la ut re.*
Minor mode of LA. *re fa la ſi.*

Theſe three ſounds, the tonic, the tonic dominant, and the ſub-dominant, contain in their chords all the notes which enter into the ſcale of the mode; ſo that, when a melody is given, it may almoſt always be found which of theſe 3 ſounds ſhould be placed in the fundamental baſs, under any particular note of the upper part. Yet it ſometimes happens that not one of theſe notes can be uſed. For example, let it be ſuppoſed that we are in the mode of *ut*, and that we find in the melody theſe two notes *la ſi* in ſucceſſion; if we confine ourſelves to place in the fundamental baſs one of the three ſounds *ut ſol fa*, we ſhall find nothing for the ſounds *la* and *ſi* but this fundamental baſs $\overset{6}{\textit{fa}}$ $\overset{7}{\textit{ſol}}$; now ſuch a ſucceſſion as $\overset{6}{\textit{fa}}$ to $\overset{7}{\textit{ſol}}$ is prohibited by the fifth rule for the fundamental baſs, according to which every ſub-dominant, as *fa*, ſhould riſe by a fifth; ſo that $\overset{6}{\textit{fa}}$ can only be followed by *ut* in the fundamental baſs, and not by $\overset{7}{\textit{ſol}}$. To remedy this, the chord of the ſub-dominant *fa la ut re* muſt be inverted into a fundamental chord of the ſeventh, in this manner, *re fa la ut*, which has been called the *double employment* (art. 105.) becauſe it is a ſecondary manner of employing the chord of the ſub-dominant. By this means we give to the modulation *la ſi*, this fundamental baſs $\overset{7}{\textit{re}}$ $\overset{7}{\textit{ſol}}$, which procedure is agreeable to rules.

Here then are four chords, *ut mi ſol ut*, *ſol ſi re fa*, *fa la ut re*, *re fa la ut*, which may be employed in the major mode of *ut*. We ſhall find in like manner, for the minor mode of *la*, four chords,

la ut mi la, *mi ſol*※ *ſi re*,
re fa la ſi, *ſi re fa la.*

And in this mode we ſometimes change the laſt of theſe chords into *ſi re fa*※ *la*, ſubſtituting the *fa*※ for *fa*♮. For inſtance, if we have this melody in the minor mode of *la mi fa*※ *ſol*※ *la*, we would cauſe the firſt note *mi* to carry the perfect chord *la ut mi la*, the ſecond note *fa*※ to carry the chord of the ſeventh *ſi re fa*※ *la*, the third note *ſol*※ the chord of the tonic dominant *mi ſol*※ *ſi re*, and in ſhort, the laſt the perfect chord *la ut mi la*.

On the contrary, if this melody is given always in the minor mode *la la ſol*※ *la*, the ſecond *la* being ſyncopated, it might have the ſame baſs as the modulation *mi fa*※ *ſol*※ *la*, with this difference alone, that *fa*♮ might be ſubſtituted for *fa*※ in the chord *ſi re fa*※ *la*, the better to mark out the minor mode. Beſides theſe chords juſt mentioned, which may be regarded as the principal chords of the mode, there are ſtill many others; for example, the ſeries of dominants,

7 7 7 7 7 7 7 7 7 7

ut la re ſol ut fa ſi mi la re ſol ut,

which are terminated equally in the tonic *ut,* either entirely belong, or at leaſt may be reckoned as belonging to the mode of *ut;* becauſe none of theſe dominants are tonic dominants, except *ſol,* which is the tonic dominant of the mode of *ut;* and beſides, becauſe the chord of each of theſe dominants forms no other ſounds than ſuch as belong to the ſcale of *ut.* But if I were to form this fundamental baſs,

7 7 7 7♭

ut la re ſol ut,

onſidering the laſt *ut* as a tonic dominant in this manner, *ut mi ſol ſi♭;* the mode would then be hanged at the ſecond *ut,* and we ſhould enter into the mode of *fa,* becauſe the chord *ut mi ſol ſi♭* ndicates the tonic dominant of the mode of *fa;* efides, it is evident that the mode is changed, ecauſe *ſi♭* does not belong to the ſcale of *ut.* In he ſame manner, were I to form this fundamenal baſs,

7 7 7 6

ut la re ſol ut,

onſidering the laſt *ut* as a tonic dominant in this nanner, *ut mi ſol la;* this laſt *ut* would indicate he mode of *ſol,* of which *ut* is the *ſub-dominant.* n like manner, ſtill, if in the firſt ſeries of dominants, I cauſed the firſt *re* to carry the third maor, in this manner, *re fa♯ la ut;* this *re* having ecome a tonic dominant, would ſignify to me he major mode of *ſol,* and the $\overset{7}{\textit{ſol}}$ which ſhould ollow it, carrying the chord $\overset{7}{\textit{ſi}}$ *re fa,* would relapſe into the mode of *ut,* from whence we had eparted. Finally, if in this ſeries of dominants, ne ſhould cauſe *ſi* to carry *fa♯* in this manner, *re fa♯ la,* this *fa* would ſhow that we had departed from the mode *ut,* to enter into that of *l.* Hence it is eaſy to form this rule for diſcoering the changes of mode in the fundamental aſs. 1. When we find a tonic in the fundamental aſs, we are in the mode of that tonic; and the ode is major or minor, according as the perfect hord is major or minor. 2. When we find a b-dominant, we are in the mode of the fifth bove that ſub-dominant; and the mode is major r minor, according as the third in the chord of e ſub-dominant is major or minor. 3. When e find a tonic dominant, we are in the mode of e fifth below that tonic dominant. As the tonic ominant carries always the third major, one annot be ſecure by the aſſiſtance of this dominant one, whether the mode be major or minor: but is only neceſſary for the compoſer to caſt his e upon the following note, which muſt be the nic of the mode in which he is; by the third of is tonic he will diſcover whether the mode be ajor or minor.

243. Every change of the mode ſuppoſes a caence; and when the mode changes in the fundaental baſs, it is almoſt always either after the nic of the mode in which we have been, or after e tonic dominant of that mode, conſidered then a tonic by favour of a cloſe which ought neceſarily to be found in that place: whence it happens that cadences in a melody for the moſt part preſage a change of mode which ought to follow them.

244. All theſe rules, joined with the table of modes which we have given (art. 234), will ſerve to diſcover in what mode we are in the middle of a piece, eſpecially in the moſt eſſential paſſages as cadences. M. D'Alembert here ſubjoins the ſoliloquy of Armida, with the continued and fundamental baſſes, but for which we muſt refer to his work. M. Rameau quotes it in his New Syſtem of Muſic, as an example of modulation highly juſt and extremely ſimple.

Chap. XIV. *Of the* Chromatic *and* Enharmonic.

245. We call that melody chromatic which is compoſed of ſeveral notes in ſucceſſion, whether riſing or deſcending by ſemitones. (See LXXXVIII. and LXXXIX. *Plate* 235.)

246. When an air is chromatic in deſcending, the moſt natural and ordinary fundamental baſs is a concatenated ſeries of tonic dominants; all of which follow one another in deſcending by a fifth, or, which is the ſame thing, increaſing by a fourth. (See LXXXVIII.)

247. When the air is chromatic in aſcending, one may form a fundamental baſs by a ſeries of tonics and of tonic dominants, which ſucceed one another alternately by the interval of a third in deſcending, and of a fourth in aſcending: ſee LXXXIX. There are many other ways of forming a chromatic air, whether in riſing or deſcending; but theſe details are not neceſſary.

248. With reſpect to the enharmonic, it is very rarely put in practice; and we have explained its formation in the firſt book. We ſhall content ourſelves with ſaying, that, in the beautiful ſoliloquy of the fourth act of Dardanus, at the words *lieux funeſtes,* &c. "fatal places," &c. we find an example of the enharmonic; an example of the diatonic enharmonic in the trio of the Fatal Siſters, in Hippolitus and Aricia, at the words, *Ou cours tu malheureux?* "Whither, unhappy, doſt thou run?" and that there are no examples of the chrometic enharmonic, at leaſt in our French operas. M. Rameau had imitated an earthquake by this ſpecies of muſic, in the 2d act of the Gallant Indians; but he informs us, that in 1735 he could not cauſe it to be executed by the band. The trio of the Fatal Siſters in Hippolitus has never been ſung in the opera as it is compoſed. But M. Rameau aſſerts (and we have heard it elſewhere by people of taſte, before whom the piece was performed), that the trial had ſucceeded when made by able hands that were not mercenary, and that its effect was aſtoniſhing.

Chap. XV. *Of* Design, Imitation, *and* Fugue.

249. In muſic, the name of *deſign,* or *ſubject,* is generally given to a particular air or melody, which the compoſer intends ſhould prevail through the piece; whether it is intended to expreſs the meaning of words to which it may be ſet, or merely inſpired by the impulſe of taſte and fancy. (See Design, § 4) In this laſt caſe, deſign is diſtinguiſhed into *imitation* and *fugue.*

250. *Imitation* conſiſts in cauſing to be repeated

the melody of one or of ſeveral bars in one ſingle part, or in the whole harmony, and in any of the various modes that may be choſen. (See IMITATION, § 2.) When all the parts abſolutely repeat the ſame air or melody, beginning one after the other, this is called a *canon*. (See AIR, § 4; and CANON, § VIII.) *Fugue* conſiſts in alternately repeating that air in the treble, and in the baſs, or even in all the parts, if there are more than two. (See FUGUE, § 2—4.)

251. Imitation and fugue are ſometimes conducted by rules merely deducible from taſte, which may be ſeen in M. Rameau's *Treatiſe on Harmony* (p. 332, &c.); with a detail of the rules for compoſition in ſeveral parts. The chief rules are, that the diſcords ſhould be found, as much as poſſible, prepared and reſolved in the ſame part; that a diſcord ſhould not be heard at the ſame time in ſeveral parts, becauſe its harſhneſs would diſguſt the ear; and that in no particular part there ſhould be found two octaves or two fifths in ſucceſſion with reſpect to the baſs. Muſicians, however, ſometimes violate this precept, when taſte or occaſion require. In muſic, as in all the other fine arts, it is the buſineſs of the artiſt to aſſign and to obſerve rules; the province of men adorned with taſte and genius is to find the exceptions.

CHAP. XVI. DEFINITIONS *of the* DIFFERENT AIRS.

252. WE ſhall finiſh this treatiſe by giving, in a few words, the characteriſtic diſtinctions of the different airs to which names have been given, as *chacoon*, *minuet*, *rigadoon*, &c.

The CHACOON is a long piece of muſic, containing three times in each bar, of which the movement is regular, and the bars ſenſibly diſtinguiſhed. It conſiſts of ſeveral couplets, which are varied as much as poſſible. Formerly the baſs of the chacoon was a *conſtrained baſs*, or regulated by a rhythmus terminating in four bars, and proceeding again by the ſame number; at preſent compoſers of this ſpecies no longer confine themſelves to that practice. The chacoon begins, for the moſt part, not with the perfect time, which is ſtruck by the hand or foot, but with the imperfect, which paſſes while the hand or foot is elevated.

The VILLANELLE is a chacoon a little more lively, with its movement ſomewhat more briſk than the ordinary chacoon.

The PASSACAILLE only differs from a chacoon as it is more ſlow, more tender, and beginning for ordinary with a perfect time.

The MINUET is an air in triple time, whoſe movement is regular, and neither extremely briſk nor ſlow, conſiſting of two parts or ſtrains, which are each of them repeated; and for which reaſon they are called by the French *repriſes*: each ſtrain of the minuet begins with a time which is ſtruck, and ought to conſiſt of 4, of 8, or of 12 bars; ſo that the cadences may be eaſily diſtinguiſhed, and recur at the end of each 4 bars.

The SARABANDO is properly a ſlow minuet; and the *courant* a very ſlow ſarabando: this laſt is no longer in uſe. The *paſſepied* is properly a very briſk minuet, which does not begin like the common minuet, with a ſtroke of the foot or hand; but in which each ſtrain begins in the laſt of the three times of which the bar conſiſts.

The LOURE is an air whoſe movement is ſlow, whoſe time is marked with $\frac{6}{4}$, and where two of the times in which the bar conſiſts are beaten; it generally begins with that in which the foot is raiſed. For ordinary the note in the middle of each time is ſhortened, and the firſt note of the ſame time pointed.

The JIG is properly nothing elſe but a loure very briſk, and whoſe movement is extremely quick.

The FORLANA is a moderate movement, and in a mediocrity between the loure and the jig.

The RIGADOON has two times in a bar, is compoſed of two ſtrains, each to be repeated, and each conſiſting of 4, of 8, or of 12 bars: its movement is lively: each ſtrain begins, not with a ſtroke of the foot, but at the laſt note of the ſecond time.

The BOUREE is almoſt the ſame thing with the rigadoon.

The GAVOTTE has two times in each bar, is compoſed of two ſtrains, each to be repeated, and each conſiſting of 4, of 8, or of 12 bars: the movement is ſometimes ſlow, ſometimes briſk; but never extremely quick, nor very ſlow.

The TAMBOURIN has two ſtrains, each to be repeated, and each conſiſting of 4, of 8, or of 12 bars, &c. Two of the times that make up each bar are beaten, and are very lively; and each ſtrain generally begins in the ſecond time.

The MUSETTE conſiſts of two or three times in each bar; its movement is neither very quick nor very ſlow; and for its baſs it has often no more than a ſingle note, which may be continued through the whole piece.

APPENDIX.

253. To the preceding tranſlation of Mr D'ALEMBERT's excellent treatiſe on Muſic, we think it only neceſſary to ſubjoin a few general obſervations on the philoſophy of muſical ſound, commonly called HARMONICS, which may perhaps convey the full portion of knowledge of the theory of muſic, with which one in ſearch only of general information would chooſe to reſt ſatisfied.

254. The theory of muſical ſound, which only in the beginning of the 18th century was ultimately eſtabliſhed by mathematical demonſtration, is no other than that which diſtinguiſhed the ancient muſical ſect who followed the opinions of PYTHAGORAS on that ſubject.

255. No part of natural philoſophy has been more fruitful of hypotheſis than that of which muſical ſound is the object. The muſical ſpeculators of Greece arranged themſelves into a great number of different ſects, the chief of whom were the PYTHAGOREANS and the ARISTOXENIANS.

256. PYTHAGORAS ſuppoſed the air to be the *vehicle* of ſound; and the agitation of that element, occaſioned by a ſimilar agitation in the parts of the ſounding body, to be the *cauſe* of it. The vibrations of a ſtring or other ſonorous body, being communicated to the air, affected the auditory nerves with the ſenſation of ſound; and this

ſound, he argued, was acute or grave in proportion as the vibrations were quick or ſlow.—He diſcovered by experiment, that of two ſtrings equal in every thing but length, the ſhorter made the quicker vibrations, and emitted the acuter ſound:—in other words, that the number of vibrations made in the ſame time, by two ſtrings of different lengths, was inverſely as thoſe lengths; that is, the greater the length the ſmaller the number of vibrations in any given time. Thus ſound, conſidered in the vibrations that cauſe it, and the dimenſions of the vibrating body, came to be reduced to quantity, and as ſuch was the ſubject of calculation, and expreſſible by numbers.—For inſtance, the two ſounds that form an octave could be expreſſed by the numbers 1 and 2, which would repreſent either the number of vibrations in a given time, or the length of the ſtrings; and would mean, that the acuter ſound vibrates twice, while the graver vibrates once; or that the ſtring producing the lower ſound is twice the length of that which gives the higher. If the vibrations were conſidered, the higher ſound was as 2, the lower as 1; the reverſe, if the length was alluded to. In the ſame manner, in the ſame ſenſe, the 5th would be expreſſed by the ratio of 2 to 3, and the 4th by that of 3 to 4.

257. ARISTOXENUS, in oppoſition to the calculations of Pythagoras, held the ear to be the ſole ſtandard of muſical proportions. That ſenſe he accounted ſufficiently accurate for muſical, though not for mathematical, purpoſes; and it was, in his opinion, abſurd to aim at an artificial accuracy in gratifying the ear beyond its own power of diſtinction. He, therefore, rejected the velocities, vibrations, and proportions of Pythagoras as foreign to the ſubject, in ſo far as they ſubſtituted *abſtract cauſes* in the room of *experience*, and made muſic the object of *intellect* rather than of *ſenſe*.

258. Of late, however, the opinions of PYTHAGORAS have been confirmed by abſolute demonſtration; and the following propoſitions, in relation to muſical ſound, have paſſed from conjecture to certainty.

259. Sound is generated by the vibrations of elaſtic bodies, which communicate the like vibrations to the air, and theſe again the like to our organs of hearing. This is evident, becauſe ſounding bodies communicate tremors to other bodies at a diſtance from them. The vibrating motion, for inſtance, of a muſical ſtring, excites motion in others, whoſe tenſion and quantity of matter diſpoſe their vibrations to keep time with the undulations of air propagated from the ſtring firſt ſet in motion.

260. If the vibrations be iſochronous, and the ſound muſical, continuing at the ſame pitch, it is ſaid to be acuter, ſharper, or higher, than any other ſound whoſe vibrations are ſlower; and graver, flatter, or lower, than any other whoſe vibrations are quicker. For while a muſical ſtring vibrates, its vibrations become quicker by increaſing its tenſion or diminiſhing its length, its ſound at the ſame time will be more acute; and, on the contrary, by diminiſhing its tenſion or increaſing its length, the vibrations will become ſlower and the ſound graver. The like alteration of the pitch of the ſound will follow, by applying, by means of a weight, an equal degree of tenſion to a thicker or heavier, and to a ſmaller or lighter ſtring, both of the ſame length, as in the ſmaller ſtring the maſs of matter to be moved by the ſame force is leſs.

261. If ſeveral ſtrings, however, different in length, denſity, and tenſion, vibrate altogether in equal times, their ſounds will have all one and the ſame pitch, however they may differ in loudneſs or other qualities.—They are called UNISONS. The vibrations of uniſons are iſochronous.

262. The vibrations of a muſical ſtring, whether wider or narrower, are nearly iſochronous. Otherwiſe, while the vibrations decreaſe in breadth till they ceaſe, the pitch of the ſound could not continue the ſame (which we perceive by experience it does), unleſs where the firſt vibrations are made very violently; in which caſe, the ſound is a little acuter at the beginning than afterwards.

263. Laſtly, the word VIBRATION means the time which paſſes between the departure of the vibrating body from any aſſigned place and its return to the ſame.

(1.) * MUSICAL. *adj.* [*muſical*, Fr. from *muſic*.] 1. Harmonious; melodious; ſweet ſounding.—

The merry birds
Chanted above their chearful harmony,
And made amongſt themſelves a ſweet conſort,
That quicken'd the dull ſp'rit with *muſical* comfort. *Fairy Queen.*
Sweet bird that ſhunn'ſt the noiſe of folly,
Moſt *muſical*, moſt melancholy. *Milton.*

—Neither is it enough to give his author's ſenſe, in poetical expreſſions and in *muſical* numbers. *Dryden.* 2. Belonging to muſic.—Several *muſical* inſtruments are to be ſeen in the hands of Apollo's muſes, which might give great light to the diſpute between the ancient and modern muſic. *Addiſon.*

(2.) MUSICAL GLASSES. See HARMONICA, N° 1, 2.

* MUSICALLY. *adv.* [from *muſical*.] Harmoniouſly: with ſweet ſound.—

Valentine *muſically* coy,
Shun'd Phædra's arms. *Addiſon.*

* MUSICALNESS. *n. ſ.* [from *muſical*.] Harmony.

(1.) * MUSICIAN. *n. ſ.* [*muſicus*, Lat. *muſicien*, Fr.] One ſkilled in harmony; one who performs upon inſtruments of muſic.—

Though the *muſicians* that ſhall play to you,
Stand in the air a thouſand leagues from hence;
Yet ſtrait they ſhall be here. *Shak. Henry* IV.
The nightingale, if ſhe ſhould ſing by day,
When every gooſe is cackling, would be thought
No better a *muſician* than the wren. *Shak.*

—A painter may make a better face than ever was; but he muſt do it by a kind of felicity, as a *muſician* that maketh an excellent air in muſic, and not by rule. *Bacon's Eſſays.*—

The praiſe of Bacchus then the ſweet *muſician*
ſung;
Of Bachus ever fair and ever young. *Dryden.*

(2.) Musicians, eminent. See Music, § 21—99.

* MUSIC. *n. ſ.* [μυσικη; *muſique*, Fr.] 1. The ſcience of harmonical ſounds.—

The man that hath no *muſic* in himſelf,
Nor is not mov'd with concord of ſweet ſounds,
Is fit for treaſons. *Shak. Merch. of Venice.*

Now look into the *muſic*-maſter's gains,
Where noble youth at vaſt expenſe is taught,
But eloquence not valued at a groat. *Dryd.*

2. Inſtrumental or vocal harmony.—

When ſhe ſpake,
Sweet words, like dropping honey, ſhe did ſhed;
And 'twixt the pearls and rubies ſoftly brake
A ſilver ſound, that heavenly *muſic* ſeem'd to
make. *Fairy Queen.*

Such *muſic*
Before was never made,
But when of old the ſons of morning ſung. *Milt.*

By *muſic* minds an equal temper know,
Nor ſwell too high, nor ſink too low;
Warriours ſhe fires with animated ſounds,
Pours balm into the bleeding lover's wounds.
Pope.

—We have dancing-maſters and *muſic*-maſters. *Arbuthnot and Pope.* 3. Entertainments of inſtrumental harmony.—What *muſic* and dancing, and diverſions, and plays, are to many in the world, that prayers and devotions, and pſalms are to you. *Law.*

Music-master, *n. ſ.* a teacher of muſic.

MUSIMON, in natural hiſtory, the name of an animal eſteemed a ſpecies of ſheep, deſcribed by the ancients as common in Corſica, Sardinia, Barbary, and the NE. parts of Aſia. It has been doubted whether the animal deſcribed under this name is now any where to be found in the world; and whether it was not, probably, a ſpurious breed between two animals of different ſpecies, perhaps the ſheep and goat, which, like the mule, not being able to propagate its ſpecies, the production of them may have been diſcontinued. Buffon ſuppoſes it to be the ſheep in a wild ſtate; and it is deſcribed as ſuch by Mr Pennant. Theſe animals live in the mountains, and run with great ſwiftneſs among the rocks. Thoſe of Kamtſchatka are ſo ſtrong, that 10 men can ſcarce hold one; and the horns are ſo large as ſometimes to weigh 30 lb. and ſo capacious, that young foxes often ſhelter themſelves in the hollow of ſuch as by accident fall off in the deſerts. See Ovis.

MUSIS, Auguſtine De, a noted engraver, better known by the name of *Agoſtino Veneziano*, or Auguſtin the Venetian, was a native of Venice, and ſcholar of Raimondi. His firſt dated print appeared in 1509. After the death of Raphael, in 1520, Agoſtino, and Marc de Ravenna, his fellow diſciple, ſeparated, and worked upon their own account. Agoſtino's lateſt prints are dated 1536; whence it is ſuppoſed he did not long ſurvive that period. He imitated the ſtyle of his maſter, and was the moſt ſucceſsful of all his ſcholars; though in taſte, and correctneſs of outline, he fell ſhort of him.

MUSIUS, Cornelius, a learned Dutch poet, born at Delft, in 1503. His religious poems are eſteemed for purity and elegance. He was killed at Leyden in 1572.

MUSIVUM aurum. See Chemistry. *Index.*

(1.) * MUSK. *n. ſ.* [*muſchio*, Ital. *muſc*, French.] *Muſk* is a dry, light and friable ſubſtance of a dark blackiſh colour, with ſome tinge of a purpliſh or blood colour in it, feeling ſomewhat ſmooth or unctuous: its ſmell is highly perfumed, and too ſtrong to be agreeable in any large quantity: its taſte is bitteriſh; it is brought from the Eaſt Indies, moſtly from the kingdom of Bantam, ſome from Tonquin and Cochin China: the animal which produces it is of a very ſingular kind, not agreeing with any eſtabliſhed genus: it is of the ſize of a common goat, but taller: the bag which contains the *muſk* is three inches long and two wide, and ſituated in the lower part of the creature's belly. *Hill.*—Some putrefactions and excrements yield excellent odours; as civet and *muſk.* *Bacon's Natural Hiſtory.*

(2.) Musk, See Moschus, § II, N° 5. According to Tavernier, the beſt and greateſt quantities of muſk come from the kingdom of Boutan, from whence it is carried for ſale to Patna, the capital of Bengal. After killing the animal, the peaſants cut off the bag, which is about the ſize of an egg, and is ſituated nearer the organs of generation than the navel. They next take out the muſk, which has then the appearance of clotted blood. When they want to adulterate it, they put a maſh of the animal's blood and liver into the place of the muſk they had extracted. In two or three years this mixture produces certain ſmall animals which eat the good muſk; ſo that, when opened, a great conſumption is perceived. Others, after extracting a portion of the muſk, put in ſmall pieces of lead to augment the weight. The merchants who tranſport the muſk to foreign countries are leſs averſe to this trick than the former; becauſe in this caſe none of the animals above-mentioned are produced. But the deceit is ſtill worſe to diſcover, when, of the ſkin taken from the belly of a young animal, they make little bags, which they ſew ſo dexterouſly with threads of the ſame ſkin, that they reſemble genuine bags. Thoſe they fill with what they take out of the genuine bags, and ſome fraudulent mixture, which it is extremely difficult for the merchants to detect. When the bags are ſewed immediately on their being cut, without allowing any part of the odour to diſſipate in the air, after they have abſtracted as much of the muſk as they think proper, if a perſon applies one of theſe bags to his noſe, blood will be drawn by the mere force of the odour, which muſt neceſſarily be weakened or diluted to render it agreeable without injuring the brain. Our author brought one of the animals with him to Paris, the odour of which was ſo ſtrong, that it was impoſſible for him to keep it in his chamber. It made every head in the houſe giddy; and he was obliged to put it into a barn, where the ſervants at laſt cut away the bag: the ſkin, notwithſtanding, always retained a portion of the odour. The largeſt muſk-bag ſeldom exceeds the ſize of a hen's egg, and cannot furniſh above half an ounce of muſk: three or four of them are ſometimes neceſſary to afford a ſingle ounce. In one of his voyages to Patna, Tavernier purchaſed 1663 bags, which weighed 1557½ oz.; and the muſk, when taken out of the bags, weighed 452 oz. Muſk affords the ſtrongeſt of all known odours. A ſmall bit of it perfumes a large quantity of matter. The odour of a ſmall particle extends through a conſiderable ſpace. It is likewiſe ſo fixed and permanent, that at the end of ſeveral years it ſeems to have loſt no part of its activity. When it comes to us, it is dry, with a kind of unctuoſity, of a dark reddiſh brown or ruſty blackiſh colour, in ſmall round grains, with very few hard clots, and perfectly free from any ſandy or other viſible foreign matter. If chewed and rubbed with a knife on paper, it looks ſmooth, bright, yellowiſh, and free from bitterneſs. Laid on a red hot iron, it catches flame, and burns almoſt entirely away, leaving only an exceeding ſmall quantity of light greyiſh aſhes: if any earthy ſubſtances have been mixed with the muſk, the quantity of the reſiduum will readily diſcover them. Muſk has a bitteriſh ſubacrid taſte: a fragrant ſmell, agreeable at a diſtance, but when ſmelt near to, ſo ſtrong as to be diſagreeable unleſs weakened by the admixture of other ſubſtances. If a ſmall quantity be infuſed in ſpirit of wine in the cold for a few days, it imparts a deep, but not a red tincture: this, though it diſcovers no great ſmell of the muſk, is nevertheleſs ſtrongly impregnated with its virtues; a ſingle drop of it communicates to a whole quart of wine a rich muſky flavour. The degree of flavour which a tincture drawn from a known quantity of muſk communicates to vinous liquors, is perhaps one of the beſt criteria for judging of the goodneſs of this commodity. Neumann informs us, that ſpirit of wine diſſolves 10 parts out of 30 of muſk, and that water takes up 12; that water elevates its ſmell in diſtillation, whilſt pure ſpirit brings over nothing. Muſk is a medicine of great eſteem in the eaſtern countries; among us, it has been for ſome time pretty much out of uſe, even as a perfume, on a ſuppoſition of its occaſioning vapours, &c. in weak females and perſons of a ſedentary life. It appears, however, from late experience, to be, when properly managed, a remedy of great ſervice even againſt thoſe diſorders which it has been ſuppoſed to produce. Dr Wall has communicated (in the *Philoſ. Tranſ.* N° 474.) an account of ſome extraordinary effects of muſk in convulſive and other diſeaſes, which have too often baffled the force of medicine. The doctor obſerves, that the ſmell of perfumes is often of diſſervice, where the ſubſtance, taken inwardly and in conſiderable quantity produces the happieſt effects; that two perſons labouring under a *ſubſultus tendinum*, extreme anxiety, and want of ſleep, from the bite of a mad dog, by taking two doſes of muſk each of which was 16 grains, were perfectly relieved from their complaints. He likewiſe obſerves, that convulſive hiccups, attended with the worſt ſymptoms, were removed by a doſe or two of 10 grains; and that in ſome caſes, where this medicine could not, on account of ſtrong convulſions, be adminiſtered to the patient by the mouth, it proved of ſervice when injected as a glyſter. He adds, that under the quantity of ſix grains, he never found much effect from it; but that, taken to 10 grains and upwards, it never fails to produce a mild diaphoreſis, without at all heating or giving any uneaſineſs: that, on the contrary, it eaſes pain, raiſes the ſpirits; and that, after the ſweat breaks out, the patient uſually falls into a refreſhing ſleep: that he never met with any hyſterical perſon, how averſe ſoever to perfumes, but could take it, in the form of a bolus, without inconvenience. To this paper is annexed an account of ſome farther extraordinary effects of muſk, obſerved by another gentleman. Repeated experience has ſince confirmed its efficacy in theſe diſorders. The doſe has ſometimes been increaſed, particularly in convulſive diſorders, to the quantity of a ſcruple or half a dram every 3 or 4 hours, with two or three ſpoonfuls of the muſk julep between. The julep is the only officinal preparation of it. It is combined with opium in tetanus, and with mercury in rabies canina.

(3.) * **Musk.** *n. ſ.* [*muſca*, Latin.] Grape hyacinth or grape flower.

(4.) **Musk**, in botany. See Hibiscus, N° 1.

Musk Animal. See Moschus, N° II, 5.

* **Muskapple.** *n. ſ.* A kind of apple. *Ainſw.*

Musk, Brasilian. See Moschus, § II, N° 1.

(1.) * **Muskcat.** *n. ſ.* [*muſk* and *cat.*] The animal from which muſk is got.

(2.) **Musk Cat.** See Moschus, § II, N° 5.

* **Muskcherry.** *n. ſ.* A ſort of cherry. *Ainſw.*

(1.) * **MUSKET.** *n. ſ.* [*mouſquet*, Fr. *moſquetto*, Italian, a ſmall hawk. Many of the fire arms are named from animals.] 1. A ſoldier's hand gun.—

Thou
Waſt ſhot at with fair eyes to be the mark
O ſmoky *muſkets.* *Shak.*

—We practiſe to make ſwifter motions than any you have out of your *muſkets.* *Bacon.*—

They charge their *muſkets*, and with hot deſire
Of full revenge, renew the fight with fire.
Waller.

—He perceived a body of their horſe within *muſket*-ſhot of him, and advancing upon him. *Clarendon.*—One was brought to us, ſhot with a *muſket* ball on the right ſide of his head. *Wiſeman.* 2. A male hawk of a ſmall kind, the female of which is the ſparrow hawk; ſo that eyas *muſket* is a young unfledged male hawk of that kind. *Hanmer.*—

Here comes little Robin.—
How now my eyas *muſket*, what news with you?
Shak.

The *muſket* and the coyſtrel were too weak,
Too fierce the falcon. *Dryden.*

(2.) *A* **Musket**, or **Musquet**, (§ 1. *def.* 1,) is properly a fire-arm born on the ſhoulder, and uſed in war; formerly fired by the application of a lighted match, but at preſent with a flint. The length of the barrel is fixed to 3 feet 8 inches from the muzzle to the touch pan: its bore is ſuch as may receive a bullet of 14 in a pound, and its diameter differs not above one 50th part from that of a bullet. The common muſket is of the caliber of 22 balls to the pound; and receives balls from 22 to 24. Muſkets were anciently born in the field by the infantry, and were uſed in England ſo lately as the beginning of the civil wars. At preſent they are little uſed, except in the defence of places; fuſees or firelocks having taken their place and *name*. See Fusil, § 2, and Firelock.

(3.) **Muskets, ancient kinds of. and methods of using.** Muſkets were firſt uſed at the ſiege of Rhegen 1521. The Spaniards were the firſt who armed part of their foot with theſe weapons. At firſt they were very heavy, and could not be uſed without a reſt. They had match-locks, and did execution at a great diſtance. On their march the ſoldiers carried only the reſts and ammunition, having boys to bear their muſkets after them. They were very ſlow in loading, not only by reaſon of the unwieldineſs of their pieces, and becauſe they carried the powder and ball ſeparate, but from the time it took to prepare and adjuſt the match) ſo that their fire was not near ſo briſk as ours is now. Afterwards a lighter match-lock muſket came in uſe; and they carried their ammunition in bandeliers, to which were hung ſeveral little caſes of wood covered with leather, each containing a charge of powder. The muſkets with reſts were uſed as late as the beginning of the civil wars in the time of Charles I. The lighter kind ſucceeded them, and continued till the beginning of the 18th century, when they alſo were diſuſed, and the troops throughout Europe armed with firelocks. Theſe are uſually made of hammered iron. For the dimenſions, conſtruction, and practice of various ſpecies of guns, muſkets, &c. ſee Cannon, Carabine, Carronade, Gun, Mortar, Howitzer, Ordnance, and Projectiles.

(4.) **Muskets, chief properties of; force of Powder in firing, &c.** The principal part of theſe inſtruments is the barrel, which ought to have the following properties: 1. Lightneſs, that it may incommode the perſon who carries it as little as poſſible. 2. Sufficient ſtrength and other properties requiſite to prevent its burſting by a diſcharge. 3. It ought to be conſtructed in ſuch a manner as not to recoil with violence. And, 4. It ought to be of ſufficient length to carry the ſhot to as great a diſtance as the force of the powder employed is capable of doing. The force of gunpowder is manifeſtly augmented in cloſe veſſels, by being compreſſed together; but this ariſes from another cauſe, namely, that a greater quantity of flame is compreſſed in the ſame ſpace, than when the powder is not rammed; and this compreſſion of the flame is in proportion to the compreſſion of the powder in the piece. But the *quantity* incloſed in a ſmall ſpace may probably make up for the quality. Mr Thomſon's experiments on the encreaſed force of gunpowder by compreſſion are as follow: Having put a charge of 218 grains of powder incloſed in a cartridge of very fine paper, gently into the bore of the piece, the velocity of the bullets, at a mean of four experiments, was at the rate of 1225 feet in a ſecond; but in a medium of three experiments, when the ſame quantity of powder was rammed down by five or ſix ſtrokes of the ramrod; the velocity was 1329 feet in a ſecond. "Now, (ſays he) the total force or preſſure exerted by the charge upon the bullet, is as the ſquare of its velocity; and $\overline{1329^2}$ is to $\overline{1225^2}$ as 1,776 is to one; or nearly as 6 is to 5; and in that proportion was the force of the given charge of powder increaſed by being rammed. When, inſtead of ramming the powder, or preſſing it gently together in the bore, it is put into a ſpace larger than it is capable of filling, the force of the charge is thereby very ſenſibly leſſened, as Mr Robins and others have found by repeated trials. In my 30th experiment, the charge conſiſting of no more than 165 grains of powder was made to occupy 3·2 inches of the bore, inſtead of 1·45 inches, which ſpace it juſt filled. When it was gently puſhed into its place without being rammed, the conſequence was, that the velocity of the bullet, inſtead of being 1100 feet or upwards in a ſecond, was only at the rate of 914 feet, and the recoil was leſſened in proportion. Hence we may draw this practical inference, that the powder with which a piece of ordnance or a fire arm is charged, ought always to be preſſed together in the bore; and if it is rammed to a certan degree, the velocity of the bullet will be ſtill farther increaſed. It is well known that the recoil of a muſket is greater when its charge is rammed than when it is not; and there cannot be a ſtronger proof that ramming increaſes the force of powder. (See Projectiles.) In firing muſkets with ſmall ſhot, a curious circumſtance ſometimes occurs, viz. that the grains, inſtead of being equally diſtributed over the ſpace they ſtrike, are thrown in cluſters of 10, 12, 15, or more; whilſt ſeveral conſiderable ſpaces are left without a grain in them. Sometimes one third or one half of the charge will be collected into a cluſter of this kind; nay, ſometimes, though much more rarely, the whole charge will be collected into one maſs, ſo as to pierce a board near an inch thick at the diſtance of 40 or 45 paces. Small barrels are ſaid to be more liable to this cluſtering than large ones; and M. de Marolles informs us, that this is eſpecially the caſe when the barrels are new, and likewiſe when they are freſh waſhed; though he acknowledges that it did not always happen with the barrels he employed even after they were waſhed. It is probable, therefore, that the cloſeneſs of the ſhot depends on ſome circumſtance relative to the wadding rather than to the mechaniſm of the barrel.

(5.) **Muskets, materials for making the barrels of.** The manufacture of fire arms is now carried to ſuch a degree of perfection by different European nations, that it may perhaps juſtly be doubted whether any farther improvement in the requſites juſt mentioned can be made. For the materials the ſofteſt iron that can be procured is to be made uſe of. The beſt in this country are formed of *ſtubs*, as they are called, or old horſe-ſhoe-nails; which are procured by gunſmiths from farriers, and from poor people wo ſubſiſt by picking them up on the great roads leading to London. Theſe are ſold at about 10s. per cwt. and 28 lb. are requiſite to form a ſingle muſket barrel.

(6.) **Muskets, method of making.** The method of manufacturing muſket barrels is as follows: A hoop of about an inch broad, and 6 or 7 inches diameter, is placed in a perpendicular ſituation, and the ſtubs, previouſly well cleaned, piled up in it with their heads outermoſt on each ſide, till the hoop is quite filled and wedged tight with them. The whole then reſembles a rough circular cake of iron; which being heated to a white heat, and then ſtrongly hammered, coaleſces into one ſolid lump. The hoop is now removed, and the heatings and hammerings repeated till the iron is rendered very tough and cloſe in the grain; when it is drawn out into pieces of about 24 inches in length, half an inch or more in breadth, and half an inch in thickneſs. Four of theſe pieces are employed for one barrel; but in the ordinary way a ſingle bar of the beſt ſoft iron is employed. The workmen begin with hammering out this into the form of a flat ruler, having its length and breadth proportioned to the dimenſions of the intended barrel. By repeated heating and hammering, this plate is turned round a tempered iron rod called a *mandril*, the diameter of which is conſiderably ſmaller than the intended bore of the barrel. One of the edges of the plate being laid over the other about half an inch, the whole is heated and welded by 2 or 3 inches at a time, hammering it briſkly, but with moderate ſtrokes, upon an anvil which has a number of ſemicircular furrows in it, adapted to barrels of different ſizes. Every time the barrel is withdrawn from the fire, the workman ſtrikes it gently againſt the anvil once or twice in an horizontal direction. By this operation the particles of the metal are more perfectly conſolidated, and every appearance of a ſeam in the barrel is obliterated. The mandril being again introduced into the cavity of the barrel, the latter is very ſtrongly hammered upon it in one of the ſemicircular hollows of the anvil, by ſmall portions at a time; the heatings and hammerings being repeated until the whole barrel has undergone the operation, and its parts rendered as perfectly continuous as if they had been formed out of a ſolid piece. To effect this completely three welding heats are neceſſary when the very beſt iron is made uſe of, and a greater number for the coarſer kinds. The next operation in forming the barrels is boring them, which is done thus: Two beams of oak, each about 6 inches in diameter, and 6 or 7 feet long, are placed horizontally and parallel to one another; having each of their extremities mortiſed upon a ſtrong upright piece about 3 feet high, and firmly fixed. A ſpace of 3 or 4 inches is left between the horizontal pieces, in which a piece of wood is made to ſlide, by having at either end a tenon let into a groove, which runs on the inſide of each beam throughout its whole length. Through this ſliding piece a ſtrong pin or bolt of iron is driven or ſcrewed in a perpendicular direction, having at its upper end a round hole large enough to admit the breech of the barrel, which is ſecured in it by a piece of iron that ſerves as a wedge, and a vertical ſcrew paſſing through the upper part of the hole. A chain is faſtened to a ſtaple in one ſide of the ſliding piece which runs between the two horizontal beams; and paſſing over a pulley at one end of the machine, has a weight hooked on it. An upright piece of timber is fixed above this pulley and between the ends of the beams, having its upper end perforated by the axis of an iron crank furniſhed with a ſquare ſocket; the other axis being ſupported by the wall, or by a ſtrong poſt, and loaded with a heavy wheel of caſt iron to give it force. The axes of this crank are in a line with the hole in the bolt. The borer, being then fixed into the ſocket of the crank, has its other end, previouſly well oiled, introduced into the barrel, whoſe breech part is made faſt in the hole of the bolt: the chain is then carried over the pulley, and the weight hooked on; the crank being then turned with the hand, the barrel advances as the borer cuts its way, till it has paſſed through the whole length. The boring bit conſiſts of an iron rod ſomewhat longer than the barrel, one end of which fits the ſocket of the crank; the other is adapted to a cylindrical piece of tempered ſteel about an inch and a half in length, having its ſurface cut like a perpetual ſcrew, with 5 or 6 threads, the obliquity of which is very ſmall. The breadth of the furrows is the ſame with that of the threads, and their depth ſufficient to let the metal cut by the threads paſs through them eaſily. Thus the bit gets a very ſtrong hold of the metal; and the threads, being ſharp at the edges, ſcoop out and remove all the inequalities and roughneſs from the inſide of the barrel, and render the cavity ſmooth and equal throughout. A number of bits, each a little larger than the former, are afterwards ſucceſſively paſſed through the barrel in the ſame way, until the bore has acquired the magnitude intended. By this operation the barrel is very much heated, eſpecially the firſt time the borer is paſſed through it, and is apt to warp. To prevent this in ſome meaſure, the barrel is covered with a cloth kept conſtantly wetted, which not only preſerves the barrel from an exceſs of heat, but likewiſe preſerves the temper of the bit from being deſtroyed. The borer itſelf muſt alſo be withdrawn from time to time; both to clean it from the ſhavings of the metal and to oil it, or repair any damages it may have ſuſtained. Every time a freſh bit has been paſſed through the barrel, the latter muſt be carefully examined, to ſee if it has warped; and likewiſe if there are any ſpots, by the workmen called *blacks*, on its inſide. When warped, it muſt be ſtraightened on the anvil; for which a few ſlight ſtrokes on the convex part will be ſufficient; and this is termed *ſetting up* the barrel. When black ſpots are perceived, the correſponding part on the outſide muſt be marked, and driven in by gentle ſtrokes with the hammer, when they will be completely removed by paſſing the borer another time through the piece. The equality of the bore is of the utmoſt conſequence to the perfection of a barrel; inſomuch that the greateſt poſſible accuracy in every other reſpect will not make amends for any deficiency in this reſpect. The method uſed by gunſmiths to aſcertain this is by a cylindrical plug of tempered ſteel highly poliſhed, about an inch in length, and fitting the bore exactly. This is ſcrewed upon the end of an iron rod, and introduced into the cavity of the barrel, where it is moved backwards and forwards; and the places where it paſſes with difficulty being marked, the borer bit is repeatedly paſſed until it moves with equal eaſe through every part. Any perſon who wiſhes to know the merit of his piece in this reſpect, may do it with tolerable accuracy by means of a plug of lead caſt on a rod of iron; or even by a muſket ball filed exactly to the bore, and puſhed through the barrel by a ramrod; taking care, however, not to uſe much force leſt the ball be flattened, and its paſſage thus rendered difficult. The laſt ſtep towards the perfection of the inſide of the barrel is termed *fine-boring;* by which is meant the ſmoothing it in ſuch a manner as to remove all marks and inequalities left by the borer. The fine-borer reſembles the other in its general conſtruction; but inſtead of the piece of ſteel cut in form of a ſcrew which belongs to that, it is furniſhed with a ſquare broach 10 or 12 inches long, highly poliſhed, and very ſharp, by which means it cuts the metal very ſmoothly. It anſwers the purpoſe beſt when only two of its edges are allowed to work; the other two are covered with ſlips of oiled paper, one or more additional ſlips being put on each time that the inſtrument is paſſed through the barrel. The fine borer is frequently paſſed through, from the muzzle to the breech, and from the breech to the muzzle, until the whole inſide preſents a perfectly equal and poliſhed ſurface; the barrel being likewiſe examined and ſet up, if requiſite, after each time. It is abſolutely neceſſary that this inſtrument ſhould be perfectly true, and not in the leaſt caſt or warped in the tempering.

(7.) **MUSKETS, METHOD OF POLISHING AND COMPLETING.** Beſides the operations above deſcribed, another, called *poliſhing*, is uſually performed on gun barrels, though it is doubtful whether this laſt be attended with any good effect or not. It is performed by a cylinder of lead, 5 or 6 inches long, caſt upon a rod of iron, and filed exactly to the bore. The lead being then covered with very fine emery and oil, is wrought backwards and forwards through the whole length of the barrel, until the inſide has acquired the requiſite degree of poliſh. The diſadvantages of this operation are, that it is ſcarce poſſible to perform it without preſſing more upon one part than another, and thus producing ſome degree of inequality on the inſide, which is of the very worſt conſequence to fire-arms. The poliſh thus given is likewiſe very periſhable; ſo that the fine-boring may juſtly be conſidered as the laſt operation neceſſary for the inſide of a barrel; and it is then proper to give the external form and proportions by a file. For this purpoſe, 4 faces are firſt formed upon it, then 8, then 16; and ſo on till it be quite round, excepting the part next the breech, called the *reinforced part*, which is always left of an octagonal form. It being abſolutely neceſſary that the barrel ſhould be equally thick on every ſide, gunſmiths employ, for accompliſhing this purpoſe, a particular tool named a *compaſs*. This conſiſts of an iron rod bent in ſuch a manner as to form two parallel branches about an inch from one another. One of theſe is introduced into the barrel, and kept cloſely applied to the ſide, by one or more ſprings with which it is furniſhed: the other deſcends parallel to this on the outſide, and has ſeveral ſcrews paſſing through it with their points directed to the barrel. By ſcrewing theſe until their points touch the ſurface of the barrel, and then turning the inſtrument round within the bore, we perceive where the metal is too thick, and how much it muſt be reduced, in order to render every part perfectly equal throughout its circumference. It may be made long enough to reach the whole length of the barrel, though it will be more convenient to have it only half as much, and to introduce it firſt at one end and then at the other. Inſtead of rounding the barrel by means of a file and compaſs, however, ſome people do ſo by turning it in a lathe; which is no doubt more expeditious, though neither ſo certain nor exact. A ſpindle as long as a gun-barrel cannot, without great difficulty, be prevented from ſpringing conſiderably under the tool employed to reduce or ſmooth it in turning; whence it is found, that by this operation barrels are more frequently warped than by all the borings they undergo; and there is now this farther inconvenience, that they cannot be ſet up as formerly, without danger of deſtroying them entirely. The barrels being thus bored and formed externally, it is cuſtomary with the gunſmiths in France to ſolder on the loops and aim before they breech the barrel. The Engliſh, however, do not reſtrict themſelves in this manner: for as ſoft ſolder is ſufficient for faſtening on theſe, they never uſe any other; while the French, who uſe hard ſolder, muſt of conſequence employ a great heat. Thus the inſide is roughened ſometimes ſo conſiderably, that it is neceſſary to repeat the fine boring; which cannot be done without injuring the threads of the ſcrew formed for the breach, if the barrel were prepared for the latter without ſoldering on the former. The firſt tool uſed in forming the breech-ſcrew is a plug of tempered ſteel, ſomewhat conical, with the threads of a male ſcrew upon its ſurface, and by the workman termed a *ſcrew tap*. This being introduced into the barrel, and worked from left to right and back again, until it has marked out the 4 firſt threads of the ſcrew, another leſs conical tap is introduced; and when this has carried the impreſſion of the ſcrew as far as it is intended to go, a third one, nearly cylindrical, is made uſe of, ſcarcely differing from the plug of the breech intended to fill the ſcrew thus formed in the barrel. The plug itſelf has its ſcrew formed by a ſcrew-plate of tempered ſteel, with ſeveral female ſcrews, correſponding with the taps employed for forming that in the barrel: 7 or 8 threads are a ſufficient length for a plug: they ought to be neat and ſharp, ſo as completely to fill the turns made in the barrel by the tap. The breech plug is then to be caſe hardened, or to have its ſurface converted into ſteel, by covering it with ſhavings of horn, or the parings of the hoofs of horſes, and keeping it for ſome time red hot; after which it is plunged in cold water. The only thing now requiſite for completing the barrel is to give them a proper colour; as a preparation for which their outſide is firſt to be neatly poliſhed with oil and emery. This being done, it was formerly the cuſtom to give ſuch a degree of heat as would make them blue throughout; but as this cannot be effected without a partial calcination of the ſurface, which of conſequence affects the inſide alſo, the blue colour has been for ſome time diſuſed, and a brown one ſubſtituted in its place. To give this colour, the pieces are firſt rubbed over with aquafortis or ſpirit of ſalt diluted with water; after which they are laid by till a complete coat of ruſt is formed upon them; a little oil is then applied; and the ſurface being rubbed dry, is poliſhed by a hard bruſh and bees wax. Thus the common muſket-barrels for the purpoſes eſpecially of ſportmanſhip are made; but there are ſome other methods of manufacture, by which the barrels are made to differ in ſome reſpects from thoſe juſt deſcribed, and are thought to be conſiderably improved. One kind of theſe are called *twiſted* barrels; and by the Engliſh workmen are formed out of the plates made of *ſtubs*. Four of theſe are requiſite to make one barrel. One of them, heated red hot for 5 or 6 inches, is turned like a cork-ſcrew by the hammer and anvil; the remaining parts being treated ſucceſſively until the whole is turned into a ſpiral, forming a tube, the diameter of which correſponds with the bore of the intended barrel. Four are generally ſufficient to form a barrel of the ordinary length, *i. e.* from 32 to 38 inches; and the two which form the breech or ſtrongeſt part, called the *reinforced part*, are conſiderably thicker than thoſe which form the muzzle or fore part of the barrel. One of theſe tubes is then welded to a part of an old barrel to ſerve as an handle; after which the turns of the ſpiral are united by heating the tube 2 or 3 inches at a time to a bright white heat, and ſtriking the end of it ſeveral times againſt the anvil, in a horizontal direction, with conſiderable ſtrength, which is called *jumping the barrel;* and the heats given for this purpoſe are called *jumping heats*. The next ſtep is to introduce a mandril into the cavity, and to hammer the heated portion lightly, in order to flatten the ridges or burrs raiſed by the jumping at the place where the ſpirals are joined. As ſoon as one piece is jumped throughout its whole length, another is welded to it, and treated in the ſame manner, until the four pieces are united, when the part of the old barrel is cut off, as being no longer of any uſe. The welding is repeated three times at leaſt, and is performed exactly in the ſame manner as for plain barrels; and the piece may afterwards be finiſhed according to the directions already given.

(8.) MUSKETS OF FRENCH MANUFACTURE. The operation for the French twiſted barrels is very different from that juſt mentioned, and much more exceptionable. It conſiſts in heating the barrel by a few inches at a time to a ſtrong red heat; one end is then ſcrewed into a vice, and a ſquare piece of iron with an handle like an augre is introduced into the other. By theſe the fibres of the heated portion are twiſted into a ſpiral direction, which is ſuppoſed to reſiſt the effort of the inflamed powder better than the other. To render this operation complete, however, it muſt be obſerved, that when once the ſeveral portions of the barrel have been twiſted, the ſubſequent heats ought not to be very great, or the grain of the metal will regain its former ſtate, and the barrel be no better for the twiſting than before. To twiſt a barrel in this manner, alſo, it will be neceſſary to forge it at leaſt half a foot longer than it is intended to be, that a ſufficient length may be kept cold at each end to give a ſufficient purchaſe to the vice and twiſting inſtrument; and theſe portions muſt afterwards be cut off before the barrel is bored, or two pieces of an old barrel may be welded to the muzzle and breech of that which is to be twiſted, and cut off when the operation is over. Theſe pieces may alſo be made ſtronger than uſual to reſiſt the force of the vice and twiſting inſtrument; and to give the latter a firmer hold, the cavity of the muzzle may be made of a ſquare form. The Engliſh workmen are unanimouſly of opinion, that this method of twiſting is really injurious to the barrel, by ſtraining the fibres of the metal. At any rate, from the injudicious methods followed by the French artiſts, the greateſt part of their barrels, ſaid to be twiſted, are not ſo in reality; there being at leaſt 6 or 7 inches at the muzzle, and 7 or 8 at the breech, which are not affected by the operation. The French *ribbon barrels* have a great reſemblance to the Engliſh twiſted ones; but the proceſs for making them is much more operoſe, though it ſeems not to poſſeſs any real advantage. A plate of iron, about the 12th part of an inch in thickneſs, is turned round a mandril, and welded its whole length like a plain barrel. Upon this ſlight barrel, which is called the *lining*, a plate of iron about an inch in breadth, and bevelled off at the edges, is by means of ſucceſſive heats rolled in a ſpiral direction; after which it is termed the *ribbon*, and muſt have a thickneſs correſponding with that part of the barrel which it is to form. As it would, however, be difficult to form a ribbon of ſufficient length for the whole barrel, it is made in ſeveral pieces; and when one piece is rolled on, another is welded to its end, and the operation continued until the lining be entirely covered. The edges are ſo much bevelled, that the one folds over the other about a quarter of an inch. After the ribbon is all rolled on, the barrel muſt be heated by 2 or 3 inches at a time, and the turns of the ſpiral united to each other and to the lining, by being welded in the ſame manner as the twiſted barrel; though it is plain that the operation of *jumping* cannot be admitted. The barrel is afterwards bored in ſuch a maner that almoſt the whole of the lining is cut out, and ſcarce any thing left but the ribbon with which the lining was covered. The ſuperiority of twiſted and ribbon barrels over the plain kind gave occaſion to a third ſort named *wired barrels*. Theſe were invented by an ingenious workman at Paris, named *Barrois;* whoſe method was as follows: Upon a thin barrel, filed and dreſſed as uſual, he rolled, as cloſe as poſſible, and in a ſpiral direction, a tempered iron wire about the thickneſs of a crow quill, the firſt layer covering only the reinforced part. The turns of the wire were ſoldered to each other and to the barrel with a compoſition which he kept a ſecret. The wired part was then filed ſmooth and bright, but not ſo much as to weaken it; a 2d layer of wire was applied over the firſt, extending two 3ds of the length of the barrel; and this being ſmoothed and brightened like the firſt, a 3d layer was applied, which covered the two former, and reached quite to the muzzle. The barrels made after this manner are ſuppoſed to be ſuperior to others, but it is certain that wire is not preferable to other iron as a material for gun-barrels; and the ſolder uſed by M. Barrois, in a quantity nearly equal to the wire itſelf, muſt be accounted a defect; for no metal is equal to iron for ſtrength: ſo that by the uſe of ſolder in the compoſition of the barrel, it muſt be undoubtedly weaker than if it had been all made of iron.

(9.) Muskets of Spanish manufacture. The Spaniſh barrels have long been held in great eſtimation, both on account of their being formed of better iron than thoſe of other countries, and likewiſe from an opinion of their being more perfectly forged and bored. Thoſe made at Madrid are the beſt, and even of theſe ſuch as have been made by former gunſmiths are in the greateſt eſtimation. The moſt celebrated Spaniſh gunſmith was Nicolas Biz, who lived in the beginning of the laſt century, and died in 1724; and the barrels fabricated by him in the former part of his life are held in great eſtimation. Thoſe of his cotemporaries, John Belan and John Fernandez, are no leſs valued; all of their barrels ſelling in France at 1000 livres, or 45l. 15s. ſterling. Almoſt all the Madrid barrels are compoſed of the old ſhoes of horſes and mules, and manufactured firſt by welding longitudinally, and then being joined together in 4 or 5 pieces like the Engliſh barrels. In this operation an immenſe waſte of the iron takes place; but that of the Spaniſh iron is by far the greateſt, a maſs of 40 or 45 lb. being required to make one barrel, which when rough from the forge weighs only 6 or 7 lb.; ſo that from 30 to 38 lb. are loſt in the hammerings. It may be doubted whether the iron be really *purified* by this waſte; for it is certain, that by long continued working in the fire it may be rendered totally uſeleſs. The Spaniſh artiſts likewiſe value themſelves on giving the inſide of their barrels a very high poliſh; but, in the opinion of good judges, it is better to take a barrel immediately after it has undergone the operation of fine boring, than to give it any higher poliſh. M. de Marolles, an author of great reputation, ſays, he has ſeen a barrel, rough from the borer, throw a charge of ſhot deeper into a quire of paper, than one which was highly poliſhed within, though the length, bore, and charge, were the ſame in both. As the Spaniſh iron is univerſally allowed to be excellent, it is probable, that the ſuperiority of the Spaniſh barrels is owing more to the goodneſs of the materials than to the ſkill of the workmen. Inſtead of making the plates overlap a *little* in the place where they join, they give one of them a complete turn; ſo that every Spaniſh barrel may be ſaid to be double throughout its whole length. The different portions of the iron are likewiſe ſo forged, that the grain of the iron is diſpoſed in a ſpiral manner; whence it has the ſame effect with a ribbon or twiſted barrel. The outſide is finiſhed by turning them in a lathe; whence they are leſs elegantly wrought than the French and Engliſh pieces. Formerly they were made from 3 to 3½ feet long; their bore being ſuch as to admit a bullet from 22 to 24 in the pound; and their weight from 3 to 3½ lb. The reinforced part extends two 5ths of the length; and at 10 or 12 inches from the breech is placed a *ſight*, ſuch as is uſually put upon the rifle-barrels, or thoſe intended only for ball. According to Eſpinas, arquebuſs-bearer to Philip IV. the weight of a Spaniſh barrel ought to be 4½ lb. when their length is 42 inches: but both weight and length are now much reduced. Next to the barrels made at Madrid, the moſt eſteemed are thoſe of Buſtindui, and St Olabe at Placentia in Biſcay; and of John and Clement Padweſtevo, Eudal Poſa, and Martin Marechal, at Barcelona; the uſual price being about 3l. 10s. Sterling.

(10.) Muskets, principal imperfections of. Having deſcribed the method of forging barrels, we proceed to give an account of theſe imperfections to which they are ſometimes liable, and which render them apt to burſt or recoil with violence. The principal of theſe are the *chink*, *crack*, and *flaw*. The firſt is a ſmall rent in the direction of the length of the barrel; the 2d across it; and the 3d is a kind of ſcale or ſmall plate adhering to the barrel by a narrow baſe, from which it ſpreads out like the head of a nail from its ſhank, and when ſeparated leaves a [illegible] hollow in the metal. The chink and flaw are of much worſe conſequence than the crack in fire-arms, the force of the powder being exerted more upon the circumference than the length of the barrel. The flaw is much more frequent than the chink, the latter ſcarce ever occurring but in [illegible] barrels formed out of a ſingle plate of iron, and then only when the metal is deficient in quality. When flaws happen on the outſide, they are of little conſequence; but in the inſide they are apt to lodge moiſture and foulneſs which corrode the iron, and thus the cavity enlarges continually till the piece burſts. This accident, however, may ariſe from many other cauſes beſides the defects of the barrel. The beſt pieces will burſt when the ball is not ſufficiently rammed home, ſo that a ſpace is left between it and the powder. A [illegible] ſmall windage, or paſſage from the inflamed powder between the ſides of the barrel and ball will be ſufficient to prevent the accident; but if the ball has been forcibly driven down with an iron ramrod, ſo as to fill up the cavity of the barrel very exactly, the piece will almoſt certainly burſt if only a very ſmall ſpace be left between it and the powder; and the greater the ſpace is, the more certainly does the event take place. [illegible] this Mr Robins gives a remarkable inſtance, accounting at the ſame time for the phenomenon. "A moderate charge of powder (ſays he), when it has expanded itſelf through the vacant ſpace and reaches the ball, will, by the velocity [illegible] has acquired, accumulate itſelf behind the ball and will thereby be condenſed prodigiouſly; whence, if the barrel be not of an extraordinary ſtrength in that part, it muſt infallibly burſt. The truth of this I have experienced in a very good Tower muſket forged of very tough iron. For, charging it with 12 pennyweight of powder, and placing the ball looſely 16 inches from the breech, on the firing of it, the part of the barrel behind the bullet was ſwelled out to double [illegible] meter like a blown bladder, and two large [illegible] of two inches in length were burſt out of it piece will frequently burſt from having its mouth ſtopped up with earth or ſnow; which ſometimes happens to ſportſmen, when, in leaping a ditch, they have aſſiſted themſelves with their fowling-piece, putting the mouth of it to the ground. And a muſket will certainly burſt, if it be fired with the muzzle immerſed only a very little way in water. It will alſo burſt from an overcharge; but when it burſts in other circumſtances, it is to be attributed to a defect in the workmanſhip, or in the iron. Theſe defects are principally an imperfection in the welding, a deep flaw having taken place, or an inequality in the bore; which laſt is the moſt common of any, eſpecially in low-priced barrels. The reaſon of a barrel's burſting from an inequality in the bore is, that the elaſtic fluid, ſet looſe by the inflammation of the powder, and endeavouring to expand itſelf in every direction, being repelled by the ſtronger parts, acts with additional force againſt the weaker, and burſt through them, which it would not have done had the ſides been equally thick throughout. With regard to defects ariſing from the bad quality of the iron, as the choice of the materials depends entirely on the gunſmith, the only way to be aſſured of having a barrel made of proper metal is to purchaſe it from an artiſt of reputation, and to give a liberal price. The recoil of a piece becomes an object of importance only when it is very great; for every piece recoils in ſome degree when it is diſcharged. The moſt frequent cauſe of an exceſſive recoil is an inequality in the bore of the barrel; and by this it will be occaſioned even when the inequality is too ſmall to be perceived by the eye. The explanation of this upon mechanical principles indeed is not eaſy: for as it is an invariable law, that action and reaction are equal, we ſhould ſuppoſe that every time a piece is diſcharged it ſhould recoil with the whole difference between the velocity of the bullet and that of the inflamed powder. The cauſe to which too great a recoil in muſkets has been uſually attributed, is the placing of the touch-hole at ſome diſtance from the breech plug; ſo that the powder is fired about the middle, or towards its fore part, rather than at its baſe. To avoid this, ſome artiſts form a groove or channel in the breech plug as deep as the 2d or 3d turn of the ſcrew: the touch-hole opening into this channel, and thus firing the powder at its very loweſt part. It appears, however, from a number of experiments made upon this ſubject by M. le Clerc gunſmith to the late king of France, that it made very little difference with regard to the recoil, whether the touch-hole was cloſe to the breech or an inch diſtant from it. The only circumſtance to be attended to with reſpect to its ſituation therefore is, that it be not quite cloſe to the breech-plug; as in ſuch a caſe it is found to be more apt to be choaked up than when placed about a quarter of an inch from it.

(11.) **MUSKETS, PROPER LENGTH OF.** The only other circumſtance to be determined with regard to muſket-barrels is their proper length. Formerly it was ſuppoſed that the longer they were made, the greater would be the diſtance to which they carried the ſhot, and that without any limitation. This opinion continued to prevail till about 60 years ago, when it was firſt propoſed as a doubt whether long barrels carried farther than ſhort ones. With regard to cannon, indeed, it had long before this time been known that they might be made too long. Balthazar Killar, a celebrated cannon-founder under Lewis XIV. when aſked by Monſ. Suriry de St Remy, why the culverin of Nancy, which is 22 feet long, did not carry a ball equally far with a ſhorter piece? he replied, that "the powder, when inflamed, ought to quit the cavity of the piece in a certain time, in order to exert its whole force upon the bullet: by a longer ſtay, part of the force is loſt; and the ſame cauſe may produce an inequality in the ſhots, by giving a variation to the bullet, ſo as to deſtroy its rectilineal force, and throw it to one ſide or other of the mark." Mr Robins, whoſe ſkill in gunnery is well known, ſays, "If a muſket barrel, of the common length and bore, be fired with a leaden bullet and half its weight of powder, and if the ſame barrel be afterwards ſhortened one half and fired with the ſame charge, the velocity of the bullet in this ſhortened barrel will be about one 6th leſs than it was when the barrel was entire; and if, inſtead of ſhortening the barrel, it be increaſed to twice its uſual length, when it will be near 8 feet long, the velocity of the bullet will not hereby be augmented more than one 8th part. The greater the length of the barrel is in proportion to the diameter of the bullet; and the ſmaller the quantity of powder, the more inconſiderable will theſe alterations of velocity be." The advantages, therefore, gained by long barrels are by no means equivalent to the diſadvantages ariſing from the weight and encumbrance of them; and from many experiments it is now proved, that one may chooſe any length he pleaſes, without any ſenſible detriment to the range of his piece. The moſt approved lengths are from 32 to 38 inches. An opinion has prevailed among ſportſmen, that by ſome unknown manœuvre the gunſmith is able to make a piece, loaded with ſmall ſhot, throw the contents ſo cloſe together, that even at the diſtance of 40 or 50 paces the whole will be confined within the breadth of a hat. From ſuch experiments as have been made on this ſubject, however, it appears, that the cloſeneſs or wideneſs with which a piece throws its ſhot is liable to innumerable variations, from cauſes which no ſkill in the gunſmith can poſſibly reach. So variable are theſe, that there is no poſſibility of making the ſame piece throw its ſhot equally cloſe twice ſucceſſively. In general, however, the cloſer the wadding is, the better diſpoſed the ſhot ſeems to be to fall within a ſmall compaſs. The cloſeneſs of the ſhot therefore would ſeem to depend on preventing the flame of the powder from inſinuating itſelf among its particles: whence thoſe who ſhoot for a wager at a mark with ſmall ſhot, put in the ſhot by ſmall quantities at a time, ramming down a little tow or thin paper over each; ſo as to fill the interſtices of the grains, and thus prevent the flame from getting in amongſt the grains and ſcattering them.

(12.) **MUSKETS WITH DOUBLE BARRELS, &c.** Some pieces are compoſed of two or more barrels joined together; in which caſe the thickneſs of each of the barrels is ſomewhat leſs than in ſingle barrelled pieces. After being properly dreſſed, each of them is filed flat on the ſide where they are to join each other, ſo that they may fit more cloſely together. Two correſponding notches are then made at the muzzle and breech of each barrel; and into theſe are fitted two ſmall pieces of iron to hold them more ſtrongly together. Being then united by tinning the contiguous parts, a triangular piece of iron called the *rib* is faſtened on in like manner, running the whole length on the upper ſide; which ſerves to hold them more ſtrongly together. After this they are to be poliſhed and coloured in the manner deſcribed for ſingle barrels: (§ 7.) Great care ſhould be taken, that the barrels joined in this manner ſhould be quite equal in ſtrength, and quite upright, or of an equal thickneſs throughout. If any inequality takes place in the ſtrength of the barrels, the weaker will be warped by the action of the ſtronger; and the warping from this cauſe has ſometimes been ſo conſiderable as to render one of the barrels uſeleſs. To bring every part of the circumference of each barrel to as equal ſtrength as poſſible, ſo that no part may be ſtrained by the exploſion, that ſide where they touch muſt be ſo reduced, that the partition between the two calibers may be no thicker than either barrel was at the ſame place before it was filed to join in this manner. Formerly the double-barrelled pieces were made with one barrel lying over the other, each barrel having a ſeparate pan, hammer, and hammer-ſpring, but only one cock for both. The barrels were therefore made to turn round at the place where the breeches joined with the ſtock; ſo that as ſoon as one was fired off, the other could be brought into its place by preſſing a ſpring moved by the guard with the right hand, while with the left the barrels were turned upon their common axis; and as ſoon as the charged barrel was thus brought into its proper ſituation, the ſpring deſcended into a notch and kept it firm. But this method was found to be too complicated, though upon the ſame plan 3 and 4 barrels were ſometimes mounted upon one ſtock; but theſe pieces were intolerably heavy, and have no real ſuperiority over the double-barrelled pieces which do not turn round, and which of conſequence are now only made uſe of. In forging barrels of all kinds, it is of importance to have them made at firſt as near as poſſible to the weight intended, ſo that very little be taken away by the boring and filing: for as the outer ſurface, by having undergone the action of the hammer, is rendered the moſt compact and pure, we ſhould remove as little of it as poſſible; and the ſame holds with the inſide.

MUSKET-BARREL. *n. ſ.* See MUSKET, § 6—12.

* MUSKETEER. *n. ſ.* [from *muſket*.] A ſoldier whoſe weapon is his muſket.—Notwithſtanding they had lined ſome hedges with *muſketeers*, they purſued them till they were diſperſed. *Clarendon.*

(1.) MUSKETO. See CULEX.

(2.) MUSKETO ISLANDS, iſlands of the United States on the coaſt of Maine.

(1.) * MUSKETOON. *n. ſ.* [*muſqueton*, Fr.] A blunderbuſs; a ſhort gun of a large bore. *Dict.*

(2.) *A* MUSKETOON is a kind of ſhort thick muſket, whoſe bore is the 38th part of its length; it carries 5 oz. of iron, or 7½ of lead, with an equal quantity of powder. This is the ſhorteſt kind of blunderbuſſes. It is of the ſame length with the CARABINE; the barrel poliſhed and clean within.

MUSK, JAVAN, and INDIAN. See MOSCHUS, N° 2, 3.

* MUSKINESS. *n. ſ.* [from *muſk*.] The ſcent of muſk.

MUSKINGUM, a river of the United States, in the North Weſtern Territory, formed by ſeveral large ſtreams, that riſes near Lake Erie. After running S. for ſeveral miles, it turns SSE. and falls into the Ohio at Fort Harmar, and Marietta, 172 miles below Pittſburg, by a mouth 250 yds. broad. It is navigable in large batteaux, nearly 150 miles.

MUSKITOE. See CULEX, and MUSQUITO.

* MUSKMELON. *n. ſ.* [*muſk* and *melon*.] A fragrant melon.—*muſkmelons* are ſown upon a hotbed dunged below, upon a bank turned upon the ſouth ſun. *Bacon.*

MUSKOGEE, } or CREEK INDIANS, a nu-
MUSKOGULGE, } merous nation, or rather a confederacy of various tribes, of North American Indians, who inhabit a hilly country in the middle parts of Georgia; which however is very fertile, being well watered, and abounding with rivulets and *creeks*, whence their European name of CREEKS. Theſe tribes conſiſt of the Abecas, Alibamas, Apalachees, Cawittaws, Chacſihoomas, Conſhacks, Cooſactees, Cooſas, Natchez, Oakmulges, Oconees, Okohoys, Pakanas, Taenſas, Talepooſas, Weetumkas, and ſome others; who united to defend themſelves againſt their common enemies, the CHACKTAWS, CHICKASAWS, &c. Their union has rendered them victorious and formidable to the ſurrounding nations. They are tall, well made, active, ſprightly, induſtrious, ſagacious, and polite; warm and faithful friends, but inveterate enemies. The men are frugal, temperate, tender huſbands, indulgent parents, and very hoſpitable to ſtrangers. Mr Bartram, the celebrated American traveller ſays, he has "been weeks among them; and never obſerved the leaſt ſign of contention or wrangling; never ſaw an inſtance of an Indian beating his wife, or reproving her in anger." Their wives, in return, are loving, faithful, and affectionate. Polygamy, however is allowed among them; but the firſt wife has ſuperiority over all the reſt, who are obliged to be her ſervants. The women in general are ſhort, but well formed and handſome, with regular features, black eyes, dark complexion, and much modeſty. The Muſkogulge language, which is ſoft and muſical, is ſpoken throughout the whole confederacy, though each nation has its peculiar dialect; but their favourite ſongs and dances are borrowed from the Chacktaws, who are famous for muſic and poetry. The chief article, in all their treaties with white people, is, that "no ſpirituous liquors ſhall be brought into their towns." They have a contemptible opinion of the fidelity of the whites in general, yet have a high idea of the Engliſh, and put great confidence in the United ſtates. They cultivate Indian corn, rice, tobacco, peaſe, beans, potatoes, cabbages, melons, peaches, plums, grapes, ſtrawberries, &c. They have great numbers of horſes, black cattle, ſwine, turkeys, ducks, and other poultry. They have about 80 towns beſides

ſides a great number of villages. About 1780, the total population was 17,280, and the number of warriors 5860; but they have ſince increaſed greatly. This extenſive confederacy was eſtabliſhed upon the ruin of that of the Natchez. The Oakmulge fields were their firſt ſettlement, after their emigration from the W. beyond the Miſſiſippi. The lateſt account of this republic is given by Dr Morſe, in his *American Gazetteer* from the MS. journal of an intelligent traveller. "Cooſa river, and its main branches, form the W. line of ſettlements or villages of the Creeks, but their hunting grounds extend 200 miles beyond, to the Tombigbee, which is the dividing line between their country and that of the Chactaws. The ſmalleſt of their towns have from 20 to 30 houſes in them, and ſome of them contain from 150 to 200, that are wholly compact. The houſes ſtand in cluſters of 4, 5, 6, 7, and 8 together, irregularly diſtributed up and down the banks of the rivers or ſmall ſtreams. Each cluſter of houſes contain a clan, or family of relations, who eat and live in common. Each town has a public ſquare, hot-houſe and yard near the centre, appropriated to various public uſes. The following are the names of the principal towns of the Upper and Lower Creeks that have public ſquares; beginning at the head of the Cooſa or Cooſa-Hatcha river, viz. Upper Ufalas, Abbacoochees, Natches, Cooſas, Oteetoocheenas, Pine Catchas, Pocuntullahaſes, Weeokees, Little Tallaſſie, Tuſkeegees, Cooſadas, Alabamas, Tawaſas, Pawactas, Autobas, Auhoba, Weelumpkees, Big and Little, Wacacoys, Wackſoy, Ochees. The following towns are in the central, inland and high country, between the Cooſa and Tallapooſee rivers, in the diſtrict called the Hillabees, viz. Hillabees, Killeegko, Oakchoys, Slakagulgas, and Wacacoys. On the waters of the Tallapooſee, from the head of the river downward, the following, viz. Tuckabatchee, Tehaſſa, Totacaga, New York, Chalaacpauley, Loguſpogus, Oakfuſkee, Ufala, Little and Big, Sogahatches, Tuckabatchees, Big Tallaſſee, Clewaleys, Cooſahatches, Coolamies, Shawaneſe or Savanas, Kenhulka, and Muckeleſs. The towns of the Lower Creeks, beginning on the head waters of the Chattahooſee, and ſo on downwards, are Chelu Ninny, Chattahooſee, Hohtatoga, Cowetas, Cuſſitahs, Chalagatſcaor, Broken Arrow, Euchees and Hitchatees ſeveral, Palachuolo, Chewackala: Beſides 20 towns and villages of the Little and Big Chehaus, low down on Flint and Chattahooſee rivers. From their roving and unſteady manner of living, it is impoſſible to determine, with preciſion, the number of Indians that compoſe the Creek nation. Gen. M'Gillivray eſtimates the number of gunmen to be between 5000 and 6000, excluſive of the Seminoles, who are of little or no account in war, except as ſmall parties of marauders, acting independent of the general intereſt of the others. The whole number of individuals may be about 25 or 26,000 ſouls. Every town and village has one eſtabliſhed white trader in it, and generally a family of whites, who have fled from ſome part of the frontiers. The Creeks are very badly armed; having few rifles, and are moſtly armed with muſkets. For near 40 years paſt (preceding 1797), the Creek Indians have had little intercourſe with any other foreigners but thoſe of the Engliſh nation. Their prejudice in favour of every thing Engliſh, has been carefully kept alive to this day. Moſt of their towns have now in their poſſeſſion Britiſh drums, with the arms of the nation, and other emblems painted on them; and ſome of their ſquaws preſerve the remnants of Britiſh flags. They ſtill believe that "The *Great King* over the water" is able to keep the whole world in ſubjection. The land of the country is a common ſtock; and any individual may remove from one part of it to another, and occupy vacant ground where he can find it. The country is naturally divided into 3 diſtricts, viz. the Upper Creeks, Lower and Middle Creeks, and Seminoles. The upper diſtrict includes all the waters of the Tallapooſee, Cooſahatchee, and Alabama rivers, and is called the Abbacoes. The Lower or Middle diſtrict includes all the waters of the Chattahooſee and Flint rivers, down to their junction; and although occupied by a great number of different tribes, the whole are called Cowetaulgas, or Coweta people, from the Cowetan town and tribe, the moſt warlike and ancient of any in the whole nation. The Lower or Southern diſtrict takes in the river Appalachicola, and extends to the point of E. Florida, and is called the country of the Seminoles. Agriculture is as far advanced with the Indians as it can well be, without the proper implements of huſbandry. A very large majority of the nation being devoted to hunting in the winter, and to war or idleneſs in ſummer, cultivate but ſmall parcels of ground, barely ſufficient for ſubſiſtence. But many individuals (particularly on Flint river, among the Chehaws, who poſſeſs numbers of negroes) have fenced fields, tolerably well cultivated: having no ploughs, they break up the ground with hoes, and ſcatter the ſeed promiſcuouſly over the ground in hills, but not in rows. They raiſe horſes, cattle, fowls, and hogs. The only articles they manufacture are earthern pots and pans, baſkets, horſe-ropes or halters, ſmoaked leather, black marble pipes, wooden ſpoons, and oil from acorns, hickory nuts, and cheſnuts." General M'Gillivray, above mentioned, was a celebrated chief among this people. His father was a native of Scotland, and his mother a woman of high rank among the Muſkogulges. He was ſent over to Britain for his education, and ſpent ſeveral years at the Univerſity of Edinburgh. On his return he was ſo highly eſteemed by the Creeks, that they formally elected him their ſovereign, and veſted him with conſiderable powers. During the American war, he ſerved under the Britiſh; in conſequence of which, his property in Georgia was confiſcated. He has ſince been an active partizan of the Creek confederacy, and has ſeveral ſiſters married to leading men among them. The Muſkogulges claim the country bounded by Lat. 34° N. but their chief towns lie in Lon. 11. 20. E. of Philadelphia: Lat. 32. 0. N.

MUSKONECUNK, a river of New Jerſey, which runs into the Delaware, 6 m. below Eaſton.

Musk-Ox. See Bos, § IV, N° ix.

* Muskpear. *n. ſ.* [*muſk* and *pear.*] A fragrant pear.

Musk-Rat. See **Castor**, N° IV, 3; and **Mus**, N° III, 41.

* **Muskrose.** *n. ſ.* [*muſk* and *roſe.*] A roſe ſo called, I ſuppoſe, from its fragrance.—In May and June come roſes of all kinds, except the *muſk*, which comes later. *Bacon.*—

Thyrſis, whoſe artful ſtrains have oft delay'd
The huddling brook to hear his madrigal,
And ſweeten'd every *muſkroſe* of the dale. *Milton.*

—The *muſkroſe* will, if a luſty plant, bear flowers in autumn without cutting. *Boyle.*

Musk Seed. See **Hibiscus**, N° 1.

Musk, Thibet. See **Moschus**, N° II, 5.

* **MUSKY.** *adj.* [from *muſk.*] Fragrant; ſweet of ſcent.—

There eternal ſummer dwells,
And weſt winds, with *muſky* wing,
About the cedar'n alleys fling
Nard and Caſſia's balmy ſmells. *Milton.*

(1.) * **MUSLIN.** *n. ſ.* [*mouſſelin*, Fr.] A fine ſtuff made of cotton.—By the uſe of certain attire made of cambrick or *muſlin* upon her head, ſhe attained to ſuch an evil art in the motion of her eyes. *Tatler.*—

In half-whipt *muſlin* needleſs lie,
And ſhuttle-cocks acroſs the counter fly. *Gay.*

(2.) **Muslin** bears a downy knot on its ſurface. There are ſeveral ſorts of muſlins brought from the Eaſt Indies, and more particularly from Bengal; ſuch as doreas, betelles, mulmuls, tanjeebs, &c. Muſlin is now manufactured in Britain, and brought to very great perfection. See **Cotton**, N° I, § vii, 4.

MUSONE, a river of Italy, in Ancona, which runs into the Adriatic, NE. of Loretto.

MUSONIUS, Caius, Rufus, a Stoic philoſopher of the 2d century, who was baniſhed into the iſland of Gyare, under the reign of Nero, for criticiſing the manners of that prince; but was recalled by Veſpaſian. He was the friend of Apollonius Tyanæus; and the letters that paſſed between them are ſtill extant.

MUSQUAKIES, a nation of N. American Indians, who inhabit the banks of Lake Michigan. They have 200 warriors.

MUSQUASH. See **Mus**, N° III, § 41.

MUSQUATONS, an Indian tribe, who inhabit the banks of Lake Michigan.

MUSQUET. See **Musket.**

MUSQUETOE. See **Culex.**

(1, 2.) **MUSQUITO**, a river and bay of E. Florida, near Cape Canaverel.

(3.) **Musquito Cove**, a bay on the N. coaſt of Jamaica.

MUSQUITONS, a nation of N. American Indians, who inhabit the banks of the Wabaſh, in the North Weſtern Territory of the United States, near the Ouiatanons and Piankaſhaws.

* **MUSROL.** *n. ſ.* [*muſerole*, Fr.] The noſeband of a horſe's bridle. *Bailey.*

* **MUSS.** *n. ſ.* A ſcramble.—

When I cry'd hoa!
Like boys unto a *muſs*, kings would ſtart forth,
And cry, Your will? *Shak.*

MUSSÆNDA, in botany, a genus of the monogynia order, belonging to the pentandria claſs of plants.

MUSSATI, Albertin, an Italian hiſtorian and poet, born at Padua. He was miniſter to the Emperor Henry VII. His hiſtorical works are eſteemed. He died in 1329.

MUSSEL, in zoology. See **Mytilus.**

MUSSELBURGH, a ſea-port town of Scotland in Mid-Lothian, in the pariſh of **Inveresk**, at the mouth of the Eſk, which ſeparates it from **Fisher-row**; but the towns are connected by a bridge, as well as by their government. It is an ancient burgh of regality, having a charter dated Dec. 11. 1562; but it had one ſo early as 1340, granted by the earl of Marr, for the attention of the inhabitants to the great Randolph earl of Murray, who died in it, in 1322. It anciently belonged to the abbacy of Dunfermline, but was granted by James VI. to the duke of Lauderdale, and purchaſed from this family, in 1709, by the ducheſs of Buccleugh. It is governed by two bailies and a treaſurer, elected annually, and 15 councillors; of whom 10 are elected from Muſſelburgh, and 5 from Fiſher-row. Two councillors go out, and 2 new ones are choſen annually. It has 7 incorporations. Its laſt charter is dated 1670. Its revenue is above 1500l. a year. The population, in 1794, was 1640. It has a market on Friday, and a fair the 2d Tueſday in Auguſt. It lies 4 miles N. of Dalkeith, and 6 E. of Edinburgh.

MUSSI Fossaglio, a rich town of Italy, in the department of Upper Po, diſtrict and late duchy of Cremona.

MUSSIS, a town of Italy, in the department of the Rubicon, diſtrict of Faenza, and late territory of Romagna.

* **MUSSITATION.** *n. ſ.* [*muſſito*, Lat.] Murmur; grumble.

(1.) **MUSSO**, Cornelius, Biſhop of Bitonto, was born in 1511. He wrote Sermons on the Creed, printed at Venice, in Italian, in 1590. He aſſiſted at the council of Trent; and died in 1574, aged 63.

(2.) **Musso**, a rich town of Italy, in the dep. of the Lairo and diſtrict of Como, on the W. bank of the lake Como.

(1.) * **MUSSULMAN.** *n. ſ.* A Mahometan believer.

(2.) **Mussulman**, or **Musylman**, is a title by which the Mahometans diſtinguiſh themſelves; ſignifying, in the Turkiſh language, "true believer, or orthodox." See **Mahometanism.** In Arabic, the word is written **Moslem**, **Musleman**, or **Mosolman.** The appellation was firſt given to the Saracens, as is obſerved by Leunclavius.—There are two kinds of Muſſulmans, very averſe to each other; the one called **Sonnites**, and the other **Shiites.**—The Sonnites follow the interpretation of the Alcoran given by Omar; the Shiites are the followers of Ali. The ſubjects of the king of Perſia are Shiites; and thoſe of the grand ſignior, Sonnites. See **Alcoran**, and **Sonna.** Some authors ſay, that the word Muſſulman ſignifies *ſaved*, that is, predeſtinated; and that the Mahometans give themſelves the appellation, as believing they are all predeſtinated to ſalvation.—Martinius is more particular as to the origin of the name; which he derives from the Arabic מסלם, *muſalem*, "ſaved, ſnatched out of danger:" the Mahometans, he obſerves, eſtabliſhing their religion by fire and ſword.

ſword, maſſacred all thoſe who would not embrace it, and granted life to all that did, calling them *Muſſulmans*, q. d. *erepti è periculo*; whence the word, in courſe of time, became the diſtinguiſhing title of all thoſe of that ſect, who have affixed to it the ſignification of *true believers*.

MUSSY, or Mussy L'Evêque, a town of France, in the dep. of Aube, 9 miles SSE. of Bar ſur Seine.

* MUST. *verb imperfect.* [*muſſen*, Dutch.] To be obliged; to be by neceſſity. It is only uſed before a verb. *Muſt* is of all perſons and tenſes, and uſed of perſons and things.—Do you confeſs the bond?—I do.—Then *muſt* the Jew be merciful.—On what compulſion *muſt* I? *Shak.*—*Muſt* I needs bring thy ſon unto the land from whence thou cameſt. *Gen.* xxiv. 5.—

Fade, flowers, fade, nature will have it ſo;
'Tis but what we *muſt* in our Autumn do. *Waller*.

—Becauſe the ſame ſelf-exiſtent being neceſſarily is what he is, 'tis evident, that what he may be, or hath the power of being, he *muſt* be. *Grew.*—Every father and brother of the convent has a voice in the election, which *muſt* be confirmed by the Pope. *Addiſon.*

(1.) * *To* Must. *v. a.* [*mws*, Welſh, ſtinking; *mos*, Dutch, mouldineſs; or perhaps from *moiſt*.] To mould; to make mouldy.—They are ſubject to give and be moiſt, which will *muſt* corn. *Mort.*

(2.) * *To* Must. *v. n.* To grow mouldy.

(1.) * Must, *n. ſ.* [*muſtum*, Lat.] New wine; new wort.—If in the *muſt* of wine, or wort of beer, before it be tunned, the burrage ſtay a ſmall time, and be often changed, it makes a ſovereign drink for melancholy. *Bacon's Nat. Hiſt.*—

As a ſwarm of flies in vintage time,
About the wine-preſs where ſweet *muſt* is pour'd,
Beat off, returns as oft with humming ſound.
Milton.

The wine itſelf was ſuiting to the reſt,
Still working in the *muſt*, and lately preſs'd.
Dryden.

A frugal man that with ſufficient *muſt*
His caſks repleniſh'd yearly. *Philips.*

—Liquors, in the act of fermentation, as *muſt* and new ale, produce ſpaſms in the ſtomach. *Arbuth.*

(2.) Must is a liquid of a ſweet taſte expreſſed from grapes fully ripe; or the liquor preſſed from the fruit before it has worked or fermented. See Wine. Dr Thomſon ſays, it is compoſed of five ingredients, viz. *water*, *ſugar*, *jelly*, *extract*, and *tartareous acid*, partly ſaturated with potaſs. The quantity of ſugar is very conſiderable; it may be obtained in cryſtals by evaporating muſt to the conſiſtence of ſyrup, ſeparating the tartar which precipitates during the evaporation, and the ſetting the muſt aſide for ſome months. The cryſtals of ſugar are gradually formed." *Syſt. Chem.* iv. 314.

(3.) *A* Must for artificial wine may be thus made: Take 20 lb. of fine ſugar, 5 gallons of water, 4 oz. of white tartar, finely pulverized, or cream of tartar, and boil them in a large veſſel over a gentle fire.

(4.) Must of Rhenish wine. This is a liquor that, though drank by ſome, is found extremely to affect the brain; for not having paſſed the natural effervescence which it would have been ſubject to, in the making of wine, its ſalts are locked up till the heat of the ſtomach ſetting them to work, they raiſe their effervescence there, and ſend up abundance of ſubtle vapours to the brain. The Rheniſh muſt is of two kinds, being made either with or without boiling. That made without boiling is only put up ſo cloſe in the veſſel that it cannot work; this is called *ſtumm wine*. That by boiling is thus prepared: they take ſtrong veſſels not quite filled, and putting them into a cellar, they make a fire, mild at firſt, but increaſed by degrees, and afterwards they gradually leſſen it again, that the boiling may ceaſe of itſelf. This operation is finiſhed in 30 or 40 hours, according to the ſize of the veſſel; and the wine-boilers, inſtead of common candles, which would melt by the heat, uſe thin pieces of ſplit beech.—Theſe alſo ſerve for a double purpoſe, not only lighting them, but giving them notice of the boiling being enough; before that time, the quantity of vapours thrown up make them burn dim; but as ſoon as it is finiſhed, the vapours aſcend in leſs quantity, and the light burns briſk and clear. About 7 or 8 days after this boiling, the muſt begins to work, and after this working it is called *wine*. They have alſo another kind of Rheniſh muſt which is thus prepared: they boil the liquor to half the quantity, and put into it the medicinal ingredients they are moſt fond of, ſuch as orange-peel, elecampane root, and juniper berries, or the like; being thus medicated, the whole works much more ſlowly than it otherwiſe would.—If the boiled muſt, by too violent effervescence, caſt out its leees, it will, on this, become vapid and dead, unleſs this ſeparation is ſtopped by ſome fatty ſubſtance, ſuch as freſh butter or the like: they put this in upon a vine leaf, or elſe apply it hard to the mouth of the veſſel.

* MUSTACHES. *n. ſ.* [*muſtaches*, Fr.] Whiſkers; hair on the upper lip.—This was the manner of the Spaniards, to cut off their beards, ſave only their *muſtaches*, which they wear long. *Spenſ.*

(1.) MUSTAFA Pacha, a town of European Turkey, in Bulgaria, 56 miles NW. of Sophia.

(2.) Mustafa Pacha Kupri, a town of European Turkey in Romania, with a ſtone bridge over the Mantz; 18 miles NW. of Adrianople.

MUSTAGAM, a ſea-port of Algiers, with a caſtle; 140 miles W. of Algiers. Lon. 0. 3. W. Lat. 36. 30. N.

MUSTAPHA, the name of 3 emperors of the Turks. See Turkey.

(1.) * MUSTARD. *n. ſ.* [*mwſtard*, Welſh; *mouſtard*, Fr. *ſinapis*.] A plant.—*Miller.*—The pan-cakes were naught, and the *muſtard* was good. *Shak.*—

The roguiſh *muſtard*, dang'rous to the noſe. *King.*

—*Muſtard*, in great quantities, would quickly bring the blood into an alkaline ſtate, and deſtroy the animal. *Arbuthnot.*—

'Tis your's to ſhake the ſoul,
With thunder rumbling from the *muſtard* bowl.
Pope.

—Stick your candle in a bottle, a coffee cup, or a *muſtard* pot. *Swift.*

(2.) Mustard. See Sinapis.

(3.) Mustard, Bastard. See Cleome.

(4.) Mustard, Bastard Tower. See Arabis.

(5.) **Mustard, Buckler.** See Biscutella.

(6.) **Mustard, Hedge.** See Erysimum.

(7.) **Mustard, Mithridate.** See Thlaspi.

(8.) **Mustard Seed** is one of the ſtrongeſt of the pungent, ſtimulating, diuretic medicines, that operate without exciting much heat. It is ſometimes taken unbruiſed, to the quantity of a ſpoonful at a time, in paralytic, cachectic, and ſerous diſorders. It is applied alſo as an external ſtimulant, to benumbed and paralytic limbs; to parts affected with fixed rheumatic pain; and to the ſoles of the feet, in the low ſtage of acute diſeaſes, for raiſing the pulſe: in this intention, a mixture of equal parts of the powdered ſeeds and crumbs of bread, with the addition ſometimes of a little bruiſed garlic, are made into a cataplaſm, with a ſufficient quantity of vinegar. See Sinapis. Muſtard-ſeed yields, upon expreſſion, a conſiderable quantity of oil, which is by ſome recommended externally againſt rheumatiſms and palſies, though it has nothing of that quality by which the ſeeds themſelves prove uſeful in thoſe diſorders; the oil being mild and inſipid as that of olives, and the pungency of the ſeed remaining entire in the cake left after expreſſion; nor is any conſiderable part of the pungent matter extracted by rectified ſpirit. The bruiſed ſeeds give out readily to water nearly the whole of their active matter: added to boiled milk they curdle it, and communicate their pungency to the whey. The powder of muſtard ſeed may be made into the conſiſtence of a loch with warm water, in which a little ſea-ſalt has been diſſolved. Of this a common ſpoonful, ſometimes two, diluted with tepid water, are given on an empty ſtomach; it operates as well as an emetic, and proves an excellent remedy in moſt nervous diſorders, according to Dr Monro. *Med. Eſſ. Edinb.* vol. ii. art. 19. p. 303. note.

(9.) **Mustard, Tower.** See Turritis.

(10.) **Mustard, Treacle.** See Clypeola.

MUSTELLA, a genus of quadrupeds of the order of feræ. There are ſix cutting teeth in each jaw; thoſe of the upper jaw erect, ſharp-pointed, and diſtinct; of the lower jaw, blunter, huddled together, and two placed within the line of the reſt: The tongue is ſmooth. This genus comprehends the Otters and Weasels. "In many circumſtances (ſays Mr Kerr), the otters and weaſels agree; the body is very long, and of an equal thickneſs; the legs are ſhort, with ſmooth ſhining hair; the claws are not retractile; they dig burrows, in which they reſide; and they go about in ſearch of prey in the night: But the otters live almoſt conſtantly in the water, ſwimming on the ſurface and below it, and ſubſiſt chiefly on fiſh; they do not climb trees, neither do they leap, with a crooked body and ſtretched out tail like the weaſels; the head is larger and thicker; the tongue covered with ſoft papillæ; they have 5 grinders on each ſide of each jaw; the weaſels have 4 or 5 above, and 5 or 6 below on each ſide. From all theſe circumſtances, and the peculiar conformation of their feet, it were proper to ſeparate them into diſtinct genera; but as they are placed in the ſame genus by Linnæus, they are here only divided into two ſubordinate ſections:" viz. "Lutræ, *Otters*, having the toes of the feet webbed; and Mustelæ, *Weaſels*, having the toes unconnected." There are 29 ſpecies.

1. **Mustela Afra**, the Vansire, or *Madagaſcar Weaſel* of Pennant, is brown above, pale yellow below, and the tip of the tail is blackiſh; is 14 inches long from noſe to rump, the tail 10; in the upper jaw are 12 grinders and 10 in the lower. They inhabit Madagaſcar, and the interior parts of Africa.

2. **Mustela barbara**, the Tayra, or *Guiana Weaſel* of Pennant, is black, with a 3 lobed ſpot on the neck; is the ſize of a martin, (See N°. 5.) and has a ſtrong ſcent of muſk; the female has 4 teats. They inhabit Guiana and Braſil.

3. **Mustela Canadensis**, the Pekan, in form reſembles the pine martin; (N° 19) the body is tawny or bay, with a white ſpot on the breaſt; is near 2 feet long; the tail above 10 inches, and black as well as the legs. It has long and ſtrong whiſkers, and inhabits N. America.

4. **Mustela Erminea**, the ermine, has the tail tipt with black. (See *Plate* CCXXXI, *fig.* 1.) This ſpecies inhabits the north of Europe, Aſia, and America, and as far as the N. parts of Perſia and China; living in heaps of ſtones on the banks of rivers, in the hollows of trees, and in foreſts, eſpecially of beech, preying on ſquirrels and lemmings. In manners and food they reſemble the common weaſel (ſee N° 26.), but do not frequent houſes, haunting chiefly woods and hedges, eſpecially ſuch as border on brooks and rivulets. In general appearance they come very near the martin, but are ſhorter in the body, being ſcarcely ten inches long from noſe to rump, and the tail about 5½; the hair is likewiſe ſhorter and leſs ſhining. In the northern regions, the fur of the ermine becomes entirely white during winter, except the outer half of the tail, which remains black. The ſkins ſell in Siberia from 2l. to 3l. Sterl. per 100; but were anciently in much greater requeſt than now. In ſummer, the upper part of the body is of a pale tawny brown colour; the edges of the ears and ends of the toes are yellowiſh white; the throat, breaſt, and belly are white; in winter, in the temperate regions, it is ſometimes mottled with brown and white; but in ſevere winters becomes entirely white; the farther north and the more rigorous the climate, the purer white; thoſe of Britain generally retain a yellowiſh tinge. In Perſia and other ſouthern parts, it is brown the whole year. In Siberia they burrow in the fields, and are taken in traps baited with fleſh. In Norway they are either ſhot with blunt arrows, or taken in traps made of two flat ſtones, one being propped up with a ſtick, to which is faſtened a baited ſtring, which when the animals nibble, the ſtone falls down and cruſhes them to death. The Laplanders take them in the ſame manner, only, inſtead of ſtones, they uſe two logs of wood. Dr Gmelin diſtinguiſhes 2 varieties; viz.

i. **Mustela Erminea æstiva**, the *ſtoat*, has a reddiſh yellow tinge, or pale tawny brown, and the tail tipt with black.

ii. **Mustela Erminea hyberna**, the white ermine, is entirely white, except the black tip on the tail. But the difference between theſe ſeems to depend on the climate and ſeaſon; the ſtoat becoming the white ermine in winter.

5. MUSTELA FOINA, the common MARTIN, is of a blackiſh cheſnut colour, with the throat and breaſt white: the head and body meaſure 18 inches, the tail 10. (See *Fig.* 2.) Martins inhabit Britain, Germany, France, and moſt parts of the ſouth of Europe, and even the warmer parts of Ruſſia. They live in woods, and go about during the night in queſt of prey. They are moſt elegant lively animals. Their movements are all exceedingly nimble; they rather bound and leap than walk. They climb rough walls with eaſe and alacrity; enter pigeon or hen houſes, eat the eggs, fowls, &c. and the females often kill great numbers, and tranſport them to their young. They likewiſe ſeize mice, rats, moles, and birds in their neſts. Count Buffon kept one of theſe animals for a conſiderable time, having tamed him to a certain degree, but he never formed any attachment, and continued always ſo wild, that it was neceſſary to chain him. He made war againſt the rats, and attacked the poultry whenever they came in his way. He often got looſe, though chained by the middle of the body. At firſt he went to no great diſtance, and returned in a few hours; but without diſcovering any ſymptoms of joy or affection to any particular perſon. He, however, called for victuals like a cat or a dog. Afterwards he made longer excurſions; and at laſt walked off altogether. He was then about a year and a half old. He ate every thing preſented to him, except herbs; was fond of honey, and preferred hemp ſeed to every other grain. He drank very often; ſometimes ſlept two days ſucceſſively; and at other times none for 2 or 3 days. Before ſleeping, he folded himſelf in a round form, and covered his head with his tail. While awake, his motions were ſo violent, ſo perpetual, and ſo incommodious, that though he had not diſturbed the fowls, it was neceſſary to chain him, to prevent him from breaking every thing. The count adds, that he has had in his poſſeſſion ſeveral martins of a more advanced age, which had been taken in nets; but they continued to be totally ſavage, bit all who attempted to touch them, and would eat nothing but raw fleſh. The character of this animal is differently given by Mr Pennant; who ſays, "it is very *good-natured*, ſportive, and capable of being *tamed*." The younger females bring 3 or 4 at a birth; when older they produce 6 or 7. They breed in hollows of trees; and are often, in winter, found in magpies neſts. The ſkin and excrements have a muſky ſmell.

6. MUSTELA FURO, the FERRET, has red and fiery eyes; the colour of the whole body is a very pale yellow; the length from noſe to tail is about 14 inches, the tail 5. (See *Fig.* 3.) In their wild ſtate they inhabit Africa; whence they were brought into Spain, to free that country from rabbits with which it was over-run; and from Spain the reſt of Europe has been ſupplied. They cannot bear cold, nor ſubſiſt even in France unleſs in a domeſtic ſtate. They have not the ſame capacity of finding ſubſiſtence as other wild animals, but muſt be nouriſhed within doors, and cannot exiſt in the fields; for thoſe who are loſt in the burrows of rabbits periſh during winter. Like other domeſtic animals, they vary in colour. The female ferret is leſs than the male, and when in ſeaſon, is ſo extremely ardent that ſhe dies if her deſires are not gratified. Ferrets are brought up in caſks or boxes, where they are furniſhed with beds of hemp or flax. They ſleep very much. When they awake they ſearch eagerly for food; and brawn, bread, milk, &c. are commonly given them. They produce twice a-year; and the female goes ſix weeks with young. Some of them devour their young as they are brought forth, inſtantly come again in ſeaſon, and have three litters, which generally conſiſt of 5 or 6, and ſometimes of 7, 8, or 9. They are uſed for hunting rabbits; and as in this country they are apt to degenerate, warreners croſs the breed, by an intercourſe between a female ferret and a male polecat, by leaving the former, when in ſeaſon, near the haunts of the latter: The produce is of a much darker colour than the ferret, having a great reſemblance to the polecat. This animal is naturally a mortal enemy to the rabbit. When a dead rabbit is for the firſt time preſented to a young ferret, he flies upon it, and bites it with fury; but if it be alive, he ſeizes it by the throat or the noſe, and ſucks its blood. When let into the burrows of rabbits, he is muzzled, that he may not kill them in their holes, but only oblige them to come out, to be caught in the nets. If the ferret is let in without a muzzle, he is in danger of being loſt: for, after ſucking the blood of the rabbit, he falls aſleep; and even ſmoking the hole is not a certain method of recalling him; becauſe the holes have often ſeveral entries which communicate with each other, and the ferret retires into one of thoſe when incommoded with the ſmoke. Ferrets are alſo uſed for catching birds in the holes of walls or old trees. The ferret, though eaſily tamed, and rendered docile, is extremely iraſcible: his odour is always diſagreeable; but, when irritated, it becomes more offenſive. His eyes are lively, and his aſpect is inflammatory; all his movements are nimble; and he is at the ſame time ſo vigorous, that he can eaſily maſter a rabbit, though four times larger than himſelf.

7. MUSTELA GALERA, the TAYRA of Buffon, or *Guinea weaſel* of Pennant, is of an uniform duſky colour, the fur very rough. It is about the ſize of a rabbit, and is ſhaped like a rat. (See *fig.* 4.) It inhabits Guinea; where it burrows in the ground by means of its fore feet, which are ſtrong and formed for digging. It is very common about the negro villages, and is exceedingly fierce and deſtructive to poultry.

8. MUSTELA GUIANENSIS, the *Guiana*, or *South American martin*, is of a dark brown colour, with a white forehead, and a long narrow ſtripe along the ſide of the neck. The body and head are near 2 feet long, and the tail is only about 5 inches. It inhabits Guiana. See *fig.* 5.

9. MUSTELA LANGIER, the *wooly weaſel*, or ſmall Guiana martin, is covered with white woolly hair, and has a long taper tail: the body and head are near 16 inches long, and the tail near 9. It inhabits Cayenne.

10. MUSTELA LUTRA BRASILIENSIS, the *Braſilian otter*, is black, with a yellow ſpot below the chin; the tail is flat, naked, and reaches only to the feet. It is about the ſize of a middling dog,

but weighs from 40 to 100 lb; the head and teeth reſemble thoſe of a cat; the eyes are ſmall, round, and black: the feet have 5 toes each, with ſharp claws. They inhabit Braſil, Guiana, and the rivers of South America; live in ſocieties, on fiſh, crabs, &c. and are very fierce, but may be tamed when young.

11. **Mustela Lutra Canadensis**, the Canadian otter, is of a black colour; and the fur is ſmooth. It has a long taper tail; and inhabits Canada and other parts of N. America. See *Fig.* 6.

12. **Mustela Lutra Chilensis**, the *Chileſe otter* of Molina, has hairy webbed feet, and a long round tail. They inhabit the coaſts of Chili.

13. **Mustela Lutra Guianensis**, the ſmall *Guiana otter*, with the hind feet webbed, the toes of the fore feet unconnected, and a long taper naked tail, inhabits Cayennne, and probably other parts of S. America. It is only about 7 inches long from the noſe to the rump; the tail is near 7; the upper parts of the head and body are marked with large browniſh black ſpots, exactly correſponding on both ſides, and the intervals are of a yellowiſh grey colour; all the under parts of the body and head, and the fore parts of the fore legs, are white; there is a white ſpot over each eye; the ears are large and round; and the mouth is garniſhed with long whiſkers. Buffon ſays, there are three varieties of otters in Cayenne: 1ſt, Black, which weighs from 40 to 50 lb. French. 2d, Yellowiſh, weighing 20 or 25 lb. 3d, The ſmall greyiſh kind above deſcribed, which only weighs 3 or 4 lb. The other two are not deſcribed, but they appear in numerous troops, are very fierce and dangerous, and defend themſelves againſt dogs, biting very cruelly: they litter in holes which they dig on the banks of rivers; and are often tamed and brought up in houſes.

14. **Mustela Lutra lutreola**, the *leſſer otter*, has very broad hairy feet, and a white mouth; and ſeldom exceeds a foot in length. The body is of a tawny and duſky colour mixed together; the fur having two ſeries of hairs, of which the ſhort are yellowiſh and the long black. Theſe animals inhabit Poland, Finland, Ruſſia, and Siberia; frequent marſhy places, and prey on fiſh and frogs. (See *Fig.* 7.) They are caught with dogs and traps, and are exceſſively fetid; but the fur is vere valuable, being eſteemed next in beauty to that of the ſable.

15. **Mustela Lutra Lutris**, the *ſea otter*, having hairy feet and a hairy tail. From noſe to tail it is about 3 feet long, and the tail is about 13 inches; the body and the limbs are black, except the fore part of the head which is white or grey; the largeſt individual weighs from 70 to 80 lb.; the fur is very thick, long, black, and gloſſy, ſometimes varying to ſilvery, with a ſoft down beneath. (See *Fig.* 8.) The ſea otter inhabits the NW. coaſts of America, and Eaſtern Aſia, and the intermediate iſlands. It lives moſtly in the ſea, and ſwims with great facility; frequenting ſhallows which abound in ſea-weeds, and feeding on lobſters, fiſh, *ſepiæ* or cuttle-fiſh, and ſhell-fiſh. It is a harmleſs animal; very affectionate to its young, inſomuch that it will pine to death at the loſs of them, and die on the very ſpot where they have been taken from it. Before the young can ſwim, the dams carry them in their paws, lying in the water on their backs: they ſwim often on their back, their ſides, and even in a perpendicular poſture; are very ſportive; embrace, and kiſs each other: they breed but once a-year, and have but one young at a time, ſuckle it for a year, and bring it on ſhore. They are dull-ſighted, but quick-ſcented; and run very ſwiftly on land. They are hunted for their ſkins, which are of great value; being ſold to the Chineſe for 70 or 80 rubles a-piece: each ſkin weighs 3½ lb. The young are reckoned very delicate meat, ſcarce to be diſtinguiſhed from a ſucking lamb. Their cry is nearly ſimilar to that of a young dog, ſometimes interrupted by another cry ſimilar to that of the *ſaki*, or fox-tailed monkey. They may be nouriſhed with the flour of manioc diluted in water.

16. **Mustela Lutra Mink**, the *viſon* of Gmelin, has webbed feet, and the whole body of a full dark cheſnut colour. This ſpecies inhabit North America, on the banks of rivers, preying on fiſh, birds, and mice.

17. **Mustela Lutra Paraguensis**, the *ſaricovienne*, is the ſize of a cat, of a mixed grey and black colour; has webbed feet; inhabits the banks of the Plata; and lives more in the water than on land. The fur is like velvet; and the fleſh is very delicate.

18. **Mustela Lutra Piscatoria**, the common OTTER, has naked feet, and the tail is about half the length of the body. It is in general about two feet long, from the tip of the noſe to the baſe of the tail. The fur is of a deep brown colour, with two ſmall white ſpots on each ſide of the noſe, and one beneath the chin. (See *fig.* 9.) This animal inhabits Europe, N. America, and Aſia as far as Perſia. It frequents rivers, lakes, and fiſh ponds; and preys on fiſh, frogs, and freſh water cruſtaceous animals, being exceedingly deſtructive to fiſh ponds. They procreate in February, and the female brings forth 3 or 4 young ones in May; the male calls the female by a ſoft murmuring noiſe. The otter ſhows great ſagacity in forming its habitation: it burrows under ground on the banks of a river or lake; it always makes the entrance of its hole under water; working upwards to the ſurface of the earth, and forming, before it reaches the top, ſeveral holes, that, in caſe of high floods, it may have a retreat: for, though amphibious, no animal loves more to lye dry: it makes a minute orifice for the admiſſion of air; and the more effectually to conceal its retreat, makes even this air-hole in ſome thick buſh. The otter is capable of being tamed: he will follow his maſter like a dog, and even fiſh for him, and return with his prey. Though he does not caſt his hair, his ſkin is browner, and ſells dearer in winter than in ſummer; and makes a very fine fur. His fleſh has a diſagreeable fiſhy taſte. His retreats exhale a noxious odour from the remains of putrid fiſhes; and his own body has a bad ſmell. The dogs chace the otter ſpontaneouſly, and eaſily catch him when at a diſtance from the water or from his hole. But, when ſeized, he defends himſelf, bites the dogs cruelly, ſometimes with ſuch force as to break their leg-bones, and never quits his hold but with life. The beavers,

however, purſue the otters, and will not allow them to live on the ſame banks.

19. Mustela Martes, the *pine martin*, has the body of a dark or blackiſh cheſnut colour, the breaſt and throat yellow. They inhabit the north of Europe, Aſia, and America; are more rarely found in Britain, France, Germany, and Hungary; and as far as Tonquin in China. They live in large woods and foreſts, keeping in the day time the hollows of trees, occupying ſquirrels neſts, eſpecially for their young, and go about only by night. They prey on ſquirrels, mice, rats, and ſmall birds; eat berries, ripe fruit, and honey; and, in winter, go in queſt of pigeons and poultry. They procreate in February; and the female after 9 months brings forth 7 or 8 young ones. The head of this ſpecies is ſhorter, and the legs are ſomewhat longer, than thoſe of the common martin; but the fur is far ſuperior in fineneſs, and is a great article in commerce; thoſe about Mount Caucaſus, with an orange throat, are eſteemed by furriers.

20. Mustela Melina, the *yellow weaſel*, has the back and belly of a pale cinereous yellow; the face, crown, legs, and tail black. It is 18 inches long from noſe to rump; the tail is alſo 18 inches, and has long hair; the head is flat, ears rounded, noſe blunt, eyes duſky coloured; cheeks and chin white, and the throat a rich yellow. *Pennant*

21. Mustela Putoria, the *pole-cat*, is of a dirty yellow colour, with white muzzle and ears. He inhabits moſt parts of Europe, and the temperate climates of Aſiatic Ruſſia; and has a great reſemblance to the martin in temperament, manners, diſpoſition and figure. (See *fig.* 10.) He approaches houſes, mounts the roofs, takes up his abode in hay-lofts, barns, and unfrequented places, from which he iſſues at night only in queſt of prey. He burrows under ground, forming a ſhallow retreat about two yards long, terminating under the roots of ſome large tree. He makes greater havoc among fowls than the martin, cutting off their heads, and carrying them off one by one to his magazine. If he cannot carry them off entire, on account of the ſmallneſs of the entry to his hole, he eats the brains, and takes only the heads along with him. He is likewiſe very fond of honey, attacks the hives in winter, and forces the bees to abandon them. The females come in ſeaſon in the ſpring; and bring forth 3, 4, or 5. In the deſarts of Aſiatic Ruſſia, polecats are ſometimes found, eſpecially in winter, of a white colour; they are alſo found beyond lake Baikal with white or yellowiſh rumps, bounded with black They are exceedingly fetid, like the martin and ſable, giving out from the anus a moſt offenſive vapour when frightened. The male is moſtly of a yellowiſh tinge, having a whitiſh muzzle, while that of the female is a yellowiſh dirty white.

22. Mustela Quiqui, is of a dark brown colour, has a wedge-ſhaped muzzle, inhabits Chili, in burrows under ground, is ferocious, and preys on marine animals.

23 Mustela Sarmatica, the *Sarmatian weaſel*, is of a browniſh black colour, ſpotted and ſtriped irregularly with obſcure yellow, and is about 14 inches long, excluſive of the tail, which is ſix inches. It reſembles the polecat (N° 21.), but has a narrower head, a more lengthened body, a longer tail, and ſhorter hair, except on the feet and tail. They inhabit Poland, eſpecially Volhynia; the deſarts of Ruſſia between the Volga and Tanais; the mountains of Caucaſus, Georgia, and Bukharia. They are very voracious, and prey on marmots, rats, mice, jerboas, birds, and other ſmall animals. They procreate in ſpring, and after 8 weeks the female, which has 8 teats, brings forth from 4 to 8 young ones. They live in holes, moſtly in thoſe which have been made by other animals, and are exceedingly fetid.

24. Mustela Sibirica, the *Siberian weaſel*, called *Kolonok* by the Ruſſians, is of a deep yellow; has the ſoles of the feet very hairy; is 12 inches long, and the tail 6; the face is black, and the fur long and looſe. They reſide in Siberia, in foreſts; between the Altaic mountains, and the Amur and lake Baikal.

25. Mustela Viſon. The *Viſon* reſembles the martin, (N° 19.) is of a gloſſy tawny colour; the tail duſky; the body 17 inches long, the tail 9; the legs are very ſhort.

26. Mustela vulgaris, the common weaſel, foumart, fitchet, or whitret, has the upper parts of the body of a pale reddiſh brown; the lower white. (See *fig.* 11.) This ſpecies inhabit the temperate and northern parts of Europe, Aſia, and America, and as far to the ſouthward as the northern provinces of Perſia, and are found even in Barbary. In the N. parts of Ruſſia and Sweden, particularly in W. Bothnia, they become white in winter like the ermine; but are eaſily diſtinguiſhable, being a great deal ſmaller; the body and head not exceeding 7 inches long, and the tail 2½. They are very deſtructive to birds, poultry, and young rabbits; and are great devourers of eggs. They do not eat their prey on the place; but, after killing it by one bite near the head, carry it off to their young. They prey alſo on moles, and are ſometimes caught in mole-traps. They are remarkably active, and run up the ſide of walls with ſuch eaſe, that ſcarce any place is ſecure from them; the body being ſo ſmall, that almoſt any hole is pervious to it. This ſpecies frequent out-houſes, barns, and granaries, which they clear from mice and rats, being much greater enemies to them than even cats. But in ſummer, they retire from houſes, eſpecially into low grounds, about mills, along rivulets, concealing themſelves among bruſh-wood, to ſurpriſe birds; and often take up their abode in old willows, where the female brings forth her young. She prepares for them a bed of ſtraw, leaves, and other herbage, and litters in ſpring, bringing from 6 to 8 or more at a time. The young are born blind; but ſoon acquire ſight and ſtrength. Their motion conſiſts of unequal and precipitant leaps; and when they want to mount a tree or ſeize a bird, they make a ſudden bound, by which they are at once elevated ſeveral feet high. They have a diſagreeable odour, which is ſtronger in ſummer than in winter; and when purſued or irritated, their ſmell is felt at a conſiderable diſtance. They move always with caution and ſilence, and never cry but when hurt. Their cry is ſharp, rough,

and very expreſſive of reſentment. As their own odour is offenſive, they ſeem not to be ſenſible of a bad ſmell in other bodies. M. Buffon informs us, that a peaſant in his neighbourhood took three new-littered weaſels out of the carcaſe of a wolf that had been hung up on a tree by the hind feet. The wolf was almoſt entirely putrefied, and the female weaſel had made a neſt of leaves and herbage for her young in the thorax of this putrid carcaſe. The weaſel may be perfectly tamed, and rendered as careſſing and frolicſome as a dog or ſquirrel. The method of taming them is to ſtroke them often and gently over the back; and to threaten, and even to beat them when they bite. In the domeſtic ſtate their odour is never offenſive but when irritated. They are fed with milk, boiled fleſh, and water.

Mustela Zerda, the **Cerdo**, or *Zerda* of Mr Pennant, and the *Fennec* of Mr Bruce (deſcribed in his Appendix), is ranked by ſome authors as a ſpecies of *weaſel*, and deſcribed as ſuch in the *Ency. Britan.* But as Dr Gmelin and Mr Kerr have followed Mr Pennant in ranking it as a ſpecies of *Canis*, under which we formerly deſcribed it (ſee Canis, § I. N° iv.) we ſee no reaſon to deviate from that arrangement: at leaſt till a more perfect deſcription ſhall have aſcertained its exact place in the zoological ſyſtem.

27. i. **Mustela Zibellina**, the **sable**, has a great reſemblance to the martin (N° 5.) from which it differs in having a longer head; longer ears, ſurrounded by a yellow margin; longer and more elegant fur; the feet more thickly clothed with hair; and the tail ſhorter than the hind legs when extended, while that of the martin is much longer. The colour of the hair is cinereous at the bottom, and black at the tips; the chin is cinereous, ſometimes white, yellowiſh, or ſpotted; the mouth is garniſhed with long whiſkers; and the feet are large with white claws. It inhabits the N. parts of Aſia and America, Siberia, Kamtſchatka, and the Kurile iſlands, and formerly in Lapland; being found in Aſia as low as 58°, and in America even to 40° lat. N. The ſables frequent the banks of rivers and the thickeſt parts of the woods; avoiding the rays of the ſun, which ſoon change the colour of their hair. They live in holes of the earth, or beneath the roots of trees; ſometimes they form neſts in the trees, and ſkip with great agility from one to the other; they are very lively, and very active and reſtleſs during the night. Dr Gmelin tells us, that after eating, they generally ſleep half an hour or an hour, when they may be puſhed, ſhaken, and even pricked, without awaking. A tame one kept by him, roſe upon its hind legs on the ſight of a cat, to prepare for combat. In the woods they are much infeſted by wild cats. In ſummer they prey on ermines, weaſels, and ſquirrels, but eſpecially on hares; in winter on birds; in autumn on whortleberries, cranberries, and the berries of the ſervice tree; but their ſkins are then at the worſt; that diet cauſing their ſkins to itch, and to rub off their fur againſt the trees. They bring forth in March or April; and have from 3 to 5 at a time, which they ſuckle for 4 or 5 weeks. In ſpring, after ſhedding the coat, the fur is ſometimes of a tawny caſt, and ſometimes of a ſnowy whiteneſs. The blackeſt are reputed the beſt; and ſometimes ſell, even in Siberia, from 1l. to 10l. Sterling each. See Sable, N° 3.

ii. **Mustela Zibellina Alba**, the *White Sable*, is a variety of a ſnowy white colour, mentioned by Mr Pennant and Strahlenberg.

28. **Mustela Zibellina Americana**, the *American Sable*, is of a light tawny colour, with whitiſh head and ears, is 20 inches long; the tail 5 inches, but at the end of the hairs 8; the feet are very large and brown, with 5 white claws on each. It inhabits N. America, eſpecially Canada.

29. **Mustela Zibellina nigra**, the *Black Sable*, has the back, belly, legs and tail, black; the ſides brown, and the tail very buſhy. It is 4 feet 2 inches long from noſe to rump; the tail is 17 inches; the feet very broad and hairy all over. It has 6 ſmall fore teeth in each jaw; 6 large tuſks; 4 grinders on each ſide in the upper jaw, and 6 on each ſide on the lower. It inhabits New York and Pennſylvania.—Theſe two laſt ſpecies would ſeem to be only varieties, but are claſſed as diſtinct ſpecies by Mr Kerr.

(1.) * **MUSTER.** *n. ſ.* [from the verb.] 1. A review of a body of forces.—

When we would repeat
Our ſtrengths in *muſter*, we may name you all.
B. Jonſon.

2. A regiſter of forces muſtered.—Ye publiſh the *muſters* of your own hands. *Hooker.*—Deception takes wrong meaſures, and makes falſe *muſters*. *South's Sermons.* 3. A collection: as, a *muſter* of peacocks. *Ainſworth.* 4. *To paſs* Muster. To be allowed.—Such excuſes will not *paſs muſter* with God. *South's Sermons.*—Double dealers may *paſs muſter* for a while; but all parties waſh their hands of them in the concluſion. *L'Eſtrange.*

(2.) **Muster** (§ 1. *def.* 1.) is a review of troops under arms, to ſee if they be complete and in good order; to take an account of their numbers, the condition they are in, viewing their arms and accoutrements, &c.

(1.) * *To* **Muster.** *v. a.* [*mouſteren*, Dutch.] To bring together; to form into an army.—The captain, half of whoſe ſoldiers are dead, and the other quarter never *muſtered* nor ſeen, demands payment of his whole account. *Spenſer on Ireland.*

Had we no quarrel to Rome, but that
Thou art thence baniſh'd, we would *muſter* all
From twelve to ſeventy. *Shak. Coriolanus.*
I'll *muſter* up my friends, and meet your grace.
Shak.

—The principal ſcribe of the hoſt *muſtered* the people 2 *Kings.*—

I could *muſter* up, as well as you,
My giants and my witches too. *Donne.*

—A daw tricked himſelf up with all the gay feathers he could *muſter*. *L'Eſtrange.*—

Old Anchiſes
Review'd his *muſter'd* race. *Dryden.*

—All the wiſe ſayings and advices which philoſophers could *muſter* up to this purpoſe, have proved ineffectual to the common people. *Tillotſon.*—A man might have 318 men in his family, without being heir to Adam, and might *muſter* them up, and lead them out againſt the Indians. *Locke.*—Having *muſtered* up all the forces he could think of, the clouds above, and the deeps below; theſe, ſays he, are all the ſtores we have for water; and Moſes directs us to no other for the cauſes of the deluge. *Woodw. Nat. Hiſt.*

(2.) * *To* Muster. *v. n.* To aſſemble in order, to form an army.—

Why does my blood thus *muſter* to my heart?
Shak. Meaſ. for Meaſ.

They reach the deſtin'd place,
And *muſter* there. *Blackmore's Creation.*

* MUSTERBOOK. *n. ſ.* [*muſter* and *book.*] A book in which the forces are regiſtered.—We have a number of ſhadows to fill up the *muſterbook. Shak. Henry* IV.

MUSTERFIELD, a town of S. Carolina.

(1.) * MUSTERMASTER. *n. ſ.* [*muſter* and *maſter.*] One who ſuperintends the muſter to prevent frauds.—A noble gentleman, then *muſtermaſter*, was appointed ambaſſador unto the Turkiſh emperor. *Knolles's Hiſtory.*—*Muſtermaſters* carry the ableſt men in their pockets. *Raleigh.*

(2.) Muster-master general, or Commissary General of the musters; one who takes account of every regiment, their number, horſes, arms, &c. reviews them, ſees that the horſes be well mounted, and all the men well armed and accoutred, &c.

(1.) * Muster-roll. *n. ſ.* [*muſter* and *roll.*] A regiſter of forces.—How many inſignificant combatants are there in the Chriſtian camp, that only lend their names to fill up the *muſter-roll*, but never dream of going upon ſervice? *Decay of Piety.*—

Well-mouth'd Booth with emphaſis proclaims,
Tho' but perhaps a *muſter-roll* of names. *Pope.*

(2.) Muster-rolls are liſts of ſoldiers in each company, troop, or regiment, by which they are paid, and the ſtrength of the army is known.

* MUSTILY. *adv.* [from *muſty.*] Mouldily.

* MUSTINESS. *n. ſ.* [from *muſty.*] Mould; damp, foulneſs.—Keep them dry and free from muſtineſs. *Evelyn's Kalendar.*

MUSTIOGANNIM, a town of Algiers, with a citadel, in the form of a theatre, incloſed among mountains, 36 miles NE. of Oran. Lon. 1. 20. E. Lat. 36. 6. N.

* MUSTY. *adj.* [from *muſt.*] 1. Mouldy; ſpoiled with damp; moiſt and fetid.—

Waſt thou fain, poor father,
To hovel thee with ſwine and rogues forlorn,
In ſhort and *muſty* ſtraw? *Shak. King Lear.*

—Piſtachoes, ſo they be good and not *muſty*, made into a milk, are an excellent nouriſher. *Bacon.*—Let thoſe that go by water to Graveſend prefer lying upon the boards, than on *muſty* infectious ſtraw. *Harvey.* 2. Stale; ſpoiled with age.—While the graſs grows, the proverb is ſomewhat *muſty. Shakeſpeare.* 3. Vapid with fetidneſs.—

The *muſty* wine, foul cloth, or greaſy glaſs.
Pope.

4. Dull; heavy; wanting activity; wanting practice in the occurrences of life.—Xantipppe, being married to a bookiſh man who has no knowledge of the world, is forced to take his affairs into her own hands, and to ſpirit him up now and then, that he may not grow *muſty* and unfit for converſation. *Addiſon's Spectator.*

MUSURUS, Marcus, a native of Candia, who about 1500 came into Italy, and taught Greek with great applauſe at Padua. Pope Leo X. made him Abp. of Malvazia. He publiſhed editions of Ariſtophanes, Athenæus, &c. and died in 1517.

MUTA, in Roman antiquity, the goddeſs of dumbneſs. See Feralia.

* MUTABILITY. *n. ſ.* [*mutabilite*, Fr. *mutabilis*, Lat.] 1. Changeableneſs; not continuance in the ſame ſtate.—The *mutability* of that end, for which they are made, maketh them alſo changeable. *Hooker.*—

My fancy was the air, moſt free,
And full of *mutability. Suckling.*

—Plato confeſſes that the heavens and the frame of the world are corporeal, and therefore ſubject to *mutability. Stillingfleet.* 2. Inconſtancy; change of mind.—

Ambitions, covetings, change of prides, diſdain,
Nice longings, ſlanders, *mutability. Shak. Cymb.*

* MUTABLE. *adj.* [*mutabilis*, Latin.] 1. Subject to change; alterable.—Of things of the moſt accidental and *mutable* nature, accidental in their production, and *mutable* in their continuance, yet God's preſcience is as certain in him as the memory is or can be in us. *South's Sermons.* 2. Inconſtant; unſettled.—

For the *mutable* rank-ſcented many,
Let them regard me, as I do not flatter. *Coriol.*
I ſaw thee *mutable*
Of fancy. *Milton.*

* MUTABLENESS. *n. ſ.* [from *mutable.*] Changeableneſs; uncertainty; inſtability.

(1.) * MUTATION. *n. ſ.* [*mutation*, Fr. *mutatio*, Latin.] Change; alteration.—

His honour
Was nothing but *mutation*; ay, and that
From one bad thing to worſe. *Shak. Cymb.*

—The viciſſitude or *mutations* in the ſuperior globe are no fit matter for this preſent argument. *Bacon's Eſſays.*—To make plants grow out of the ſun or open air is a great *mutation* in nature, and may induce a change in the ſeed. *Bacon.*

(2.) Mutation, in the ancient muſic, is applied to the changes or alterations that happen in the order of the ſounds which compoſe the melody.

MUTATIONES, among the Romans, poſt ſtages, or places where the public couriers were ſupplied with freſh horſes. They were wholly deſigned for the uſe of theſe couriers, or meſſengers of ſtate; in which reſpect they differ from *manſiones.* See Mansio, N° 1.

MUT-BEDR, a town of Egypt, on the eaſt branch of the Nile; 4 miles SW. of Manſora.

MUTCHKIN, a liquid meaſure uſed in Scotland; containing 4 gills, being the 4th part of a Scots pint. See Measure, § VI. iii. 3.

(1.) * MUTE. *adj.* [*muet*, French; *mutus*, Lat.] 1. Silent; not vocal; not having the uſe of voice.

To the *mute*
My ſpeech is loſt; my reaſon to the brute. *Dryd.*
Mute ſolemn ſorrow, free from female noiſe,
Such as the majeſty of grief deſtroys. *Dryd.*

2. Having nothing to ſay.—

Say ſhe be *mute*, and will not ſpeak a word,
Then I'll commend her volubility. *Shak.*
All ſat *mute*,
Pondering the danger with deep thoughts. *Milt.*

All the heav'nly choir ſtood *mute*,
And ſilence was in heav'n. *Milt. Par. Loſt.*
The whole perplex'd ignoble crowd,
Mute to my queſtions, in my praiſes loud,
Echo'd the word. *Prior.*

(2.) * MUTE. *n. ſ.* 1. One that has no power of ſpeech.—

Either our hiſtory ſhall with full mouth
Speak freely of our acts; or elſe our grave,
Like Turkiſh *mute*, ſhall have a tongueleſs mouth.
Shakeſpeare.
Your *mute* I'll be;
When my tongue blabs, then let mine eyes not ſee. *Shakeſpeare.*

—He that never hears a word ſpoken, no wonder if he remain ſpeechleſs; as one muſt do, who from an infant ſhould be bred up amongſt *mutes*, and have no teaching. *Holder.*—Let the figures, to which art cannot give a voice, imitate the *mutes* in their actions. *Dryden's Dufreſnoy.* 2. A letter which without a vowel can make no ſound.—Grammarians note the eaſy pronunciation of a *mute* before a liquid. *Holder's Elem. of Speech.*

(3.) MUTE, in grammar (§ 2. *def.* 2.). The ſimple conſonants are ordinarily diſtinguiſhed into mutes and liquids, or ſemi-vowels. See ALPHABETS, § 3; CONSONANT, § 2, 3; LIQUID, &c. The mutes in the Greek alphabet are 9; three of which, viz. κ, π, τ, are termed *tenues;* three, β, γ, δ, termed *mediæ;* and three, θ, φ, χ, termed *aſpirates*. See ASPIRATE, &c. The mutes of the Latin alphabet are alſo 9, viz. B, C, D, G, J, K, P, Q, T.

(4.) MUTE, in law, a perſon that ſtands dumb or ſpeechleſs, when he ought to anſwer, or to plead. See ARRAIGNMENT.

* *To* MUTE. *v. n.* [*mutir*, French.] To dung as birds.—Mine eyes being open, the ſparrows *muted* warm dung into mine eyes. *Tob.* ii. 10.—

I could not fright the crows,
Or the leaſt bird from *muting* on my head.
Ben Jonſon.

—The bird not able to digeſt the fruit, from her inconverted *muting* ariſeth this plant. *Brown.*

MUT-EL-KOLI, a town of Egypt, 12 miles S. of Damietta.

* MUTELY. *adv.* [from *mute.*] Silently; not vocally.—

Driving dumb Silence from the portal door,
Where he had *mutely* ſat two hours before.
Milton.

(1.) MUTHIL. [*Gael.* i. e. *the North ſide of the hill*], a populous pariſh of Perthſhire, 10 miles long, and from 6 to 9 broad, watered by the *Allan*, and bounded on the N. and E. by the EARN. The climate is moiſt, but healthful; the ſurface partly hilly, partly level; the ſoil partly light loam, partly wet till, but fertile, producing rich crops of grain, huſbandry being much improved. Since 1770, 1800 acres have been incloſed and planted with trees, but ſeveral thouſand acres are ſtill uncultivated. There are 20 mills in the pariſh. The population, in 1293, was 2948; increaſe 46 ſince 1755. *Drummond Caſtle*, the ſeat of the ancient and noble family of Perth, is in this pariſh, ſeated on a rock, and built in 1490. It was partly demoliſhed in 1689, but has been lately repaired, and part of it fitted up for a library. The family ſeat is on the ſame rock, and has an unbounded proſpect. Near it ſtands Beaconhill. (See BEACON-HILL, N° 1.) There are relics of two Roman camps, one at *Strageath*, the other at *Ardoch*, the moſt complete of any in Britain, 140 yards by 125; ſuppoſed to have been erected by AGRICOLA. (See *Sinclair's Stat. Acc.* viii. 492—495.). There are alſo relics of Druidical temples, and monumental ſtones from 10 to 14 feet high. Ardoch, the ſeat of Sir William Stirling, is alſo a venerable ancient edifice.

(2.) MUTHIL, a village in the above pariſh, on the military road to Inverneſs, 4 miles S. of Crieff, 18 N. of Stirling, and 17 W. of Perth; containing about 400 inhabitants, the number of whom has been doubled ſince 1770. It has fairs on the 19th Jan. 6th May, 5th Aug. and 31ſt Oct.

MUTHVEY, a river of S. Wales, in Caermarthenſhire.

MUTHULLUS, a river of Numidia, on the banks of which Bomilcar was defeated by Marius. See NUMIDIA, § 9.

MUTHWEY, 2 rivers of Wales, in the counties of Cardigan and Merioneth.

* *To* MUTILATE. *v. a.* [*muteler*, French; *mutilo*, Latin.] To deprive of ſome eſſential part.—Such, fearing to concede a monſtroſity, or *mutilate* the integrity of Adam, preventively conceive the creation of thirteen ribs. *Brown.*—Sylburgius juſtly complains that the place is *mutilated*. *Stillingfleet.*—Among the *mutilated* poets of antiquity there is none whoſe fragments are ſo beautiful as thoſe of Sappho. *Addiſon.*—Ariſtotle's works were corrupted, from Strabo's account of their having been *mutilated* and conſumed with moiſture. *Baker.*

(1.) * MUTILATION. *n. ſ.* [*mutilation*, Fr. *mutilatio*, from *mutilo*, Lat.] Deprivation of a limb, or any eſſential part.—The ſubject hath been oppreſſed by fines, impriſonments, *mutilations*, pillories, and baniſhments. *Clarendon.*—*Mutilations* are not tranſmitted from father to ſon, the blind begetting ſuch as can ſee; cripples, mutilated in their own perſons, do come out perfect in their generations. *Brown.*

(2.) MUTILATION is alſo extended to ſtatues and buildings, where any part is wanting, or the projecture of any member, as a cornice or an impoſt, is broken off.

(3.) MUTILATION, (§ 1. *def.* 1.) is particularly uſed for caſtration (ſee CASTRATION, § 2; and EUNUCH, § 2.) The practice of this ſort of mutilation is of various kinds: The Hottentots are ſaid to cut away one teſticle from their children, upon ſuppoſition that they are thereby made lighter and more active for running. In ſome countries, poor people completely mutilate their boys, to prevent the miſery and want which would attend their offſpring. Thoſe who have nothing in view but the improvement of a vain talent, or the formation of a voice which diſfigures nature, as was the caſe formerly in Italy, are contented with cutting away the teſticles. But in ſome countries of Aſia, eſpecially among the Turks and in part of Africa, jealouſy inſpires ſuch diſtruſt, that they would not think their wives ſafe in the cuſtody of ſuch eunuchs: They employ no ſlaves in their ſeraglios who have not been deprived of all the external parts of generation. Amputation is not the only means of accompliſhing this end. Formerly, the growth of the teſticles was prevented, and their organization deſtroyed by ſimple rubbing, while the child was put into a warm bath made of a decoction of plants. Some pretend that by this ſpecies of caſtration the life is in no danger. Amputation of the teſticles is not attended with much danger; but complete amputation of the external parts of generation is often fatal. This operation can only be performed on children from ſeven to ten years of age. Eunuchs of this kind, owing to the danger attending the operation, coſt in Turkey five or ſix times the price of others. Chardin relates, that this operation is ſo painful and dangerous after 15 years of age, that hardly a fourth part of thoſe by whom it is undergone eſcape with life. Peter della Valle, on the contrary, informs us, that in Perſia, thoſe who ſuffer this cruel and dangerous operation, as a puniſhment for rapes and other crimes of this kind, are eaſily cured though far advanced in life; and that nothing but aſhes is applied to the wound. There are eunuchs at Conſtantinople, throughout all Turkey, and in Perſia, of a grey complexion: They come for the moſt part from Golconda, Indoſtan, Aſſan, Aracan, Pegu, and Malabar. Thoſe from the gulph of Bengal are of an olive colour. A few white eunuchs come from Georgia and Circaſſia. The black eunuchs come from Africa, and eſpecially from Ethiopia. Theſe, in proportion to their horrible appearance, are the moſt eſteemed, and coſt dearer. A very conſiderable trade is carried on in this ſpecies of men; for Tavernier informs us, that when he was in Golconda in 1657, 22,000 eunuchs were made in it. In that country they are ſold at fairs. Eunuchs who have been deprived only of their teſticles, continue to feel a titillation in what remains, and to have the external ſign even more frequently than other men. But the part which remains is very ſmall, and continues almoſt in the ſame ſtate in which it was when the operation was performed during childhood. It is found almoſt univerſally, that caſtration and its conſequences produce greater or leſs changes on the ſhape and appearance of eunuchs, independent of its phyſical effects. Eunuchs, ſays M. Withof, are timid, irreſolute, fearful, ſupicious, and unſteady: And this holds generally, though not without exceptions; (ſee Eunuch, § 2.) The reaſon is, that their blood has not received all the neceſſary preparation in paſſing through the ſpermatic veſſels. Thus being deprived of the properties of males, they participate of the diſpoſitions of females, and their very ſoul ſeems to be of an intermediate ſex. They are not, however, without advantages: They become larger and fatter than other men; but they ſometimes grow to a diſguſting ſize. Though oily ſubſtances are more abundant in eunuchs, they are leſs ſubject to gout and to madneſs than men who have a greater quantity of blood and of ſplenetic humours. The abundant circulation of oily liquor prevents roughneſs or inequalities in the trachea and palate. This, joined to the flexibility of the epiglottis and of the other organs of the voice, makes it ſo ſonorous and extenſive, and at the ſame time ſo ſweet, that it is almoſt impoſſible for eunuchs to pronounce diſtinctly the letter R. But this factitious advantage can be no conſolation to theſe unhappy men, for the barbarity of thoſe who have dared to ſacrifice nature at the ſhrine of avarice. It is impoſſible to reflect on the motives for making eunuchs without execration of the barbarians who practiſe it; and yet this abominable cruelty is not infallibly attended with that advantage which they expect from it. Of 2000 victims to the art, hardly three are found who unite good talents with good organs. The other languiſhing and inactive wretches are outcaſts from both ſexes, paralytic members in the community, an uſeleſs burden upon the earth, by which they are ſupported and nouriſhed. A high tribute of applauſe is due to that virtuous pontiff, Pope Clement VIII. who, liſtening to the voice of modeſty and humanity, aboliſhed this deteſtable and infamous practice. Mutilation he declared was the moſt abominable and diſgraceful of crimes.

MUTILATUS Flos. See Botany, *Index*.

MUTILLA, in zoology, a genus of animals belonging to the order of inſecta hymenoptera. There are 10 ſpecies: the moſt remarkable is,

Mutilla occidentalis, the *velvet ant*, an inhabitant of North America. It has ſix legs, with ſhort crooked antennæ; the abdomen large, with a black liſt croſſing the lower part of it, and another black ſpot at the joining of the thorax; excepting which, the whole body and head reſembles crimſon velvet. (See *Plate* 224, *fig.* 5.) The trunk or ſhell of the body is of ſuch a ſtrong and hard contexture, that though trod upon by men and cattle they receive no harm. They have a long ſting in their tails, which cauſes inflammation and great pain for half an hour to thoſe who are ſtung by them; which uſually happens to negroes and others that go barefooted. They are moſtly ſeen running very nimbly on ſandy roads in the hotteſt ſummer weather; and always ſingle. What they feed on, how they breed, and where they ſecure themſelves in winter, are unknown.

MUTINA, in ancient geography, a noble city of Gallia Ciſpadana, made a Roman colony in the ſame year with Parma, ſituated between the rivers Gabellus and Scultenna, on the Via Æmilia. Here D. Brutus, being beſieged by Antony, was relieved by the conſuls Hirtius and Panſa. The Greeks called it *Mutine*; except Polybius, in whom it is *Motine*; and in Ptolemy *Mutina*. It is now called *Modena*. See Modena, N° 3.

* MUTINE. *n. ſ.* [*mutin*, Fr.] A mutineer; a mover of inſurrection. Not in uſe.—

Methought I lay
Worſe than the *mutines* in the bilboes. *Shak.*
Like the *mutines* of Jeruſalem,
Be friends a while,

* MUTINEER. *n. ſ.* [from *mutin*, Fr.] A mover of ſedition; an oppoſer of lawful authority. —The war of the duke of Urbin, head of the Spaniſh *mutineers*, was unjuſt. *Bacon.*—

Set wide the mufti's garden-gate;
For there our *mutineers* appoint to meet. *Dryd.*

—They have caſhiered ſeveral of their followers as *mutineers*, who have contradicted them in political converſations. *Addiſon.*

* MUTINOUS. *adj. mutine,* French.] Seditious; buſy in inſurrection; turbulent.—

The diſcontented members, the *mutinous* parts,
That envied his receipt. *Shak.*

—The laws of England ſhould be adminiſtered, and the *mutinous* ſeverely ſuppreſſed. *Hayward.*

Lend me your guards, that if perſuaſion fail,
Force may againſt the *mutinous* prevail. *Waller.*
My ears are deaf with this impatient crowd;
Their wants are now grown *mutinous* and loud.
Dryden.

* MUTINOUSLY. *adv.* [from *mutinous.*] Seditiouſly; turbulently.—A woman, a young woman, a fair woman, was to govern a people in nature *mutinouſly* proud, and always before uſed to hard governors. *Sidney.*—Men imprudently often, ſeditiouſly and *mutinouſly* ſometimes, employ their zeal for perſons. *Spratt.*

* MUTINOUSNESS. *n. ſ.* [from *mutinous.*] Seditiouſneſs; turbulence.

MUTINUS. Se Mutunus.

(1.) * MUTINY. *n. ſ.* [from the verb.] Inſurrection; ſedition.—The king fled to a ſtrong caſtle, where he was gathering forces to ſuppreſs this *mutiny. Sidney.*

Their *mutinies* and revolts, wherein they
ſhew'd
Moſt valour, ſpoke not for them. *Shak.*
There's a *mutiny* in's mind. *Shak.*
Leſs than if this frame
Of heav'n were falling, and theſe elements
In *mutiny* had from her axle torn
The ſtedfaſt earth, *Milton.*

—Soldiers grow pernicious to their maſter, who becomes their ſervant, and is in danger of their *mutinies. Temple.*

(2.) Mutiny Act. See Military State.

(3.) Mutiny, Laws against, "Any officer or ſoldier who ſhall preſume to uſe traiterous or diſreſpectful words againſt the ſacred perſon of his majeſty, or any of the royal family, is guilty of mutiny.—Any officer or ſoldier who ſhall behave himſelf with contempt or diſreſpect towards the general or other commander in chief of our forces, or ſhall ſpeak words tending to their hurt or diſhonour, is guilty of mutiny.—Any officer or ſoldier who ſhall begin, excite, cauſe, or join in any mutiny or ſedition, in the troop, company, or regiment, to which he belongs, or in any other troop or company in our ſervice, or on any party, poſt, detachment, or guard, on any pretence whatſoever, is guilty of mutiny.—Any officer or ſoldier who, being preſent at any mutiny or ſedition, does not uſe his utmoſt endeavours to ſuppreſs the ſame, or coming to the knowledge of any mutiny, or intended mutiny, does not without delay give information to his commanding officer, is guilty of mutiny.—Any officer or ſoldier who ſhall ſtrike his ſuperior officer, or draw, or offer to draw, or ſhall lift up any weapon, or offer any violence againſt him, being in the execution of his office, on any pretence whatſoever, or ſhall diſobey any lawful command of his ſuperior officer, is guilty of mutiny."

* *To* Mutiny. *v. n.* [*mutiner,* Fr.] To riſe againſt authority; to make inſurrection; to move ſedition.—The ſpirit of my father begins to *mutiny* againſt this ſervitude. *Shak.*

The people *mutiny,* the fort is mine. *Waller.*

—When Cæſar's army *mutinied,* and grew troubleſome, no argument could appeaſe them. *South.*

MUTISIA, in botany, a genus of the polygamia ſuperflua order, belonging to the ſyngeneſia claſs of plants.

MUTITAS, Dumbneſs. See Dumbneſs, § 1—6; and Medicine, *Index.*

(1.) MUTIUS, Caius ſurnamed *Codrus,* and afterwards Scævola, was one of the illuſtrious Roman family of the Mutii, and rendered his name famous in the war between Porſenna king of Tuſcany and the Romans. That prince reſolving to reſtore the family of Tarquin II. went to beſiege Rome, A. A. C. 507. Mutius reſolved to ſacrifice himſelf for the ſafety of his country; and boldly entering the enemy's camp, killed Porſenna's ſecretary, whom he took for Porſenna himſelf. Being ſeized and brought before Porſenna, he told him boldly, that 300 young men like himſelf had ſworn to kill him; *but ſince this hand has miſſed thee,* continued he, *it muſt be puniſhed;* then putting his right hand on the burning coals, he let it burn with ſuch a conſtancy as aſtoniſhed the beholders. The king, amazed at the intrepidity of this young Roman, ordered that he ſhould have his freedom and return to Rome, and ſoon after concluded a peace with the Romans. From this action Mutius obtained the ſurname of *Scævola,* or *left-handed,* which was continued in his family.

(2.) Mutius Scævola, Quintus, ſurnamed the *Augur,* was an excellent civilian, and inſtructed Cicero in the laws. He was made prætor in Aſia; was afterwards conſul, and performed very important ſervices for the republic.

(3.) Mutius Scævola, Quintus, another excellent civilian, who was prætor in Aſia, tribune of the people, and at length conſul, A. A. C. 95. He governed Aſia with ſuch prudence and equity, that his example was propoſed to the governors who were ſent into the provinces. Cicero ſays, "that he was the moſt eloquent orator of all the civilians, and the moſt able civilian of all the orators." He was aſſaſſinated in the temple of Veſta, during the wars of Marius and Sylla, A. A. C. 81.

MUTIUSCHICHA, a bay of Nova Zembla.

MUT-KAMAR, a town of Egypt, on the E. branch of the Nile; 23 miles N. of Cairo, and 26 S. of Manſora.

MUTSA, or Muzza. See Muzza, N° 1.

MUTSCHEN, a town of Saxony, in Leipſic.

MUTTAMUSKEET, a lake of N. Carolina, 20 miles long and 5 broad; 3 miles N. of Pamlico Sound.

* MUTTER. *n. ſ.* [from the verb.] Murmur; obſcure utterance.—

Without his rod revers'd,
And backward *mutters* of diſſev'ring power,
We cannot free the lady. *Milton.*

(1.) * *To* mutter. *v. n.* [*mutire, muſſare,* Lat.] To grumble; to murmur.—

What would you aſk me that I would deny,
Or ſtand ſo *mutt'ring* on? *Shak.*
How! what does his caſhiered worſhip *mutter?* *Shak.*
Sky lower'd, and *mutt'ring* thunder ſome ſad
drops
Wept, at completing of the mortal ſin. *Milton.*

—They may treſpaſs, and do as they pleaſe; no man dare accuſe them, nor ſo much as *mutter* againſt them. *Burton.*—

Bold Britons, at a brave bear-garden fray,
Are rous'd; and clatt'ring ſticks cry, play, play, play:
Mean time your filthy foreigner will ſtare,
And *mutter* to himſelf, ha, *gens barbare!*
And it is well he *mutters*, well for him;
Our butchers elſe would tear him limb from limb. *Dryden.*

—When the tongue of a beautiful female was cut out, it could not forbear *muttering*. *Addiſon.*

(2.) * *To* Mutter. *v. a.* To utter with imperfect articulation: to grumble forth.—

Amongſt the ſoldiers this is *muttered*,
That here you do maintain ſev'ral factions. *Shak.*
A kind of men, ſo looſe of ſoul,
That in their ſleep will *mutter* their affairs. *Shak.*

—Your tongue hath *muttered* perverſeneſs. *Iſa.* lix. 3.—

A hateful prattling tongue,
That blows up jealouſies, and heightens fears,
By *muttering* pois'nous whiſpers in mens ears. *Creech.*

* MUTTERER. *n. ſ.* [from *mutter.*] Grumbler; murmurer.

* MUTTERINGLY. *adv.* [from *muttering.*] With a low voice; without diſtinct articulation.

(1.) * MUTTON. *n. ſ.* [*mouton*, French.] 1. The fleſh of ſheep dreſſed for food.—The fat of roaſted *mutton* or beef, falling on the birds, will baſte them. *Swift.* 2. A ſheep. Now only in ludicrous language.—

Here's too ſmall paſture for ſuch ſtore of *muttons*. *Shak.*

—The fleſh of *muttons* is better taſted where the ſheep feed upon wild thyme and wholeſome herbs. *Bacon.*—Within a few days were brought out of the country two thouſand *muttons*. *Hayward.*

(2.) Mutton (§ 1. *def.* 1.) is by ſome preferred to the fleſh of all other quadrupeds. It has indeed one advantage over them, of being more generally ſuited to different climates; whereas beef requires a very nice intermediate ſtate, which it ſeems to attain chiefly in England; for, although Scotland ſupplies the beſt cattle, it is in the rich Engliſh paſtures that they are brought to perfection. Now ſheep can be brought almoſt to the ſame perfection in this bleak northern region as in the ſouthern countries. But, in medicine and dietetics, beef, conſidered as a reſtorative, is much ſuperior to mutton and all other animal food, particularly in the form of ſoup or *beef tea*, for debilitated patients.

Mutton Bay, a bay on the coaſt of Canada, on the N. ſide of the St Lawrence.

* MUTTONFIST. *n. ſ.* [*mutton* and *fiſt.*] A hand large and red.—

Will he who ſaw the ſoldiers *muttonfiſt*,
And ſaw thee maul'd, appear within the liſt
To witneſs truth? *Dryden.*

(1.)* MUTUAL. *adj.* [*mutuel*, Fr. *mutuus*, Lat.] Reciprocal; each acting in return or correſpondence to the other.—

Note a wild and wanton herd,
If they perchance but hear a trumpet ſound,
You ſhall perceive them make a *mutual* ſtand,
By the ſweet power of muſic. *Shak.*
What ſhould moſt excite a *mutual* flame,
Your rural cares and pleaſures are the ſame. *Pope.*

(2.) Mutual is diſtinguiſhed by Vaugelas from reciprocal; *mutual* being underſtood of what is between two only; and *reciprocal*, what is between more than two; but this diſtinction is little regarded in common uſe.

* MUTUALITY. *n. ſ.* [from *mutual.*] Reciprocation.—Villanous thoughts, Roderigo! when theſe *mutualities* ſo marſhal the way, hard at hand comes the incorporate concluſion. *Shak.*

* MUTUALLY. *adv.* [from *mutual.*] Reciprocally; in return.—

He never bore
Like labour with the reſt; where th' other inſtruments
Did ſee, and hear, deviſe, inſtruct, walk, feel,
And *mutually* participate. *Shak.*
Dear love I bear to fair Anne Page,
Who *mutually* hath anſwer'd my affection. *Shak.*

—The tongue and pen *mutually* aſſiſt one another, writing what we ſpeak, and ſpeaking what we write. *Holder.*—Pellucid ſubſtances act upon the rays of light at a diſtance, in refracting, reflecting, and inflecting them; and the rays *mutually* agitate the parts of thoſe ſubſtances at a diſtance for heating them. *Newton.*—They *mutually* teach, and are taught, that leſſon of vain confidence and ſecurity. *Atterbury.*—

May I the ſacred pleaſures know
Of ſtricteſt amity, nor ever want
A friend with whom I *mutually* may ſhare
Gladneſs and anguiſh. *Philips.*

MUTULE, in architecture, a kind of ſquare modillion ſet under the cornice of the Doric order.

MUTUNUS, or Mutinus, in the ancient mythology, a deity among the Romans, the ſame as the Priapus of the Greeks. The Roman matrons, and particularly newly married women, diſgraced themſelves by the obſcene ceremonies which cuſtom obliged them to obſerve before the ſtatue of this impure deity.

MUTZCHEN. See Mutschen.

MUXACRA. See Mujaxar.

MUXARA. See Murgi.

MUY, a town of France, in the department of the Var, 6 miles SSE. of Draguignan.

MUYDEN, a town of Holland, in the dep. of Amſtel, and the late prov. of Holland, on the Vecht, near the Zuyder Zee; 6 miles E. of Amſterdam, and 6 W. of Naarden.

MUYDERBERG, a town of Holland, in the dep. of Amſtel, 3 m. E. of Muyden.

MUZILLAC, a town of France, in the dep. of Morbihan, 7½ m. NW. of Roche Bernard, and 12. S. E. of Vannes.

(1.) MUZZA, a town of Italy, in the dep. of Upper Po, and diſtrict of Lodi, between Lodi and Old Lodi.

(2.) Muzza, a river of Italy, which runs into the Adda.

(1.) * MUZZLE. *n. ſ.* [*muſeau*, Fr.] 1. The mouth of any thing; the mouth of a man in contempt.—But ever and anon turning her *muzzle* toward me, ſhe threw ſuch a proſpect upon me, as might well have given a ſurfeit to any weak lover's ſtomach. *Sidney.*—Huygens has proved, that a bullet continuing in the velocity with which it leaves the *muzzle* of the cannon, would require twenty-five years to paſs from us to the ſun. *Cheyne.*—If the poker be out of the way, or broken, ſtir the fire with the tongs; if the tongs be not at hand, uſe the *muzzle* of the bellows. *Swift.* 2. A faſtening for the mouth, which hinders to bite.—

The fifth Harry from curbed licenſe plucks
The *muzzle* of reſtraint. *Shak.*
With golden *muzzles* all their mouths were
bound. *Dryden.*

(2.) Muzzle of a Gun, or Mortar, the extremity at which the powder and ball is put in.

(1.) * *To* Muzzle. *v. a.* 1. To bind the mouth.

This butcher's cur is venom-mouth'd, and I
Have not the pow'r to *muzzle* him; therefore
beſt
Not wake him in his ſlumber. *Shak.*
The bear, the boar, and every ſavage name,
Wild in effect, though in appearance tame,
Lay waſte thy woods, deſtroy thy bliſsful bow'r,
And *muzzl'd* though they ſeem, the mutes de-
vour. *Dryden.*
Through the town with ſlow and ſolemn air,
Led by the noſtril, walks the *muzzled* bear.
Gay's Paſt.

2. To fondle with the mouth cloſe. A low word. —The nurſe was then *muzzling* and coaxing of the child. *L'Eſtrange.* 3. To reſtrain from hurt.

My dagger *muzzled*
Leſt it ſhould bite its maſter. *Shak.*

(2.) * *To* Muzzle. *v. n.* To bring the mouth near.—The bear *muzzles*, and ſmells to him, puts his noſe to his mouth and to his ears. *L'Eſtrange.*

Muzzle-Ring. *n. ſ.* the metalline circle or moulding that ſurrounds the mouth of the piece.

* MY. *pronoun poſſeſſive.* [See Mine.] Belonging to me. *My* is uſed before a ſubſtantive, and *mine* anciently and properly before a vowel. *My* is now commonly uſed indifferently before both. *My* is uſed when the ſubſtantive follows, and *mine* when it goes before: as, *this is* my *book; this book is* mine.—

Her feet ſhe in *my* neck doth place. *Spenſer.*

—I conclude *my* reply with the words of a Chriſtian poet. *Bramball.*—

If *my* ſoul had free election
To diſpoſe of her affection. *Waller.*

—I ſhall preſent *my* reader with a journal. *Addiſ.*

MYA, the gaper, in zoology; a genus belonging to the order of vermes teſtacea, the characters of which are theſe: it has a bivalve ſhell gaping at one end; the hinge, for the moſt part, furniſhed with a thick, ſtrong, and broad tooth, not inſerted into the oppoſite valve. Its animal is an Ascidia. The moſt remarkable ſpecies are theſe:

1. Mya declivis, the *ſloping mya*, has a brittle half-tranſparent ſhell, with a hinge ſlightly prominent near the open, and ſloping downwards. See *Plate* CCXXIX, *fig.* 1. It inhabits the rivers of Europe. It is frequent about the Hebrides; the fiſh are eaten there by the gentry.

2 Mya margaritifera, the pearl muscle, has a very thick, coarſe, opaque ſhell; often much decorticated; oblong, bending inward on one ſide, or arcuated; black on the outſide; uſual length from 5 to 6 inches, breadth 2½. See *Figures* 2 and 3. It inhabits great rivers, eſpecially thoſe which water the mountainous parts of Great Britain.—This ſhell is noted for producing quantities of pearl. There have been regular fiſheries for this precious article in ſeveral of our rivers. Sixteen have been found within one ſhell. They are the diſeaſe of the fiſh, analogous to the ſtone in the human body. On being ſqueezed, they will eject the pearl, and often caſt it ſpontaneouſly in the ſand. The Conway was noted for them in the days of Cambden. It is ſaid, that Sir Richard Wynne of Gwyder, chamberlain to Catharine, queen to Charles II. preſented her majeſty with a pearl found in a muſcle in this river, which is ſtill in the regal crown. They are called by the Welſh *cregin diluw*, or *deluge ſhells*, as if left there by the flood. The Irt in Cumberland alſo produced them. The famous circumnavigator, Sir John Hawkins, had a patent for fiſhing in that river. He had obſerved pearls plentiful in the Straits of Magellan, and flattered himſelf with being enriched by procuring them within his own iſland. In the 17th century, ſeveral of great ſize were got in the rivers of Tyrone and Donegal in Ireland. One that weighed 36 carats was valued at 40l. though being foul, its value was much diminiſhed. Other ſingle pearls were ſold from 4l. 10s. to 10l. The laſt was ſold a ſecond time to Lady Glenlealy, who put it into a necklace, and refuſed 80l. for it from the ducheſs of Ormond. Suetonius reports, that Cæſar was induced to undertake his Britiſh expedition for the ſake of our pearls; and that they were ſo large that it was neceſſary to uſe the hand to try the weight of a ſingle one. Mr Pennant ſuppoſes that the cryſtalline balls called *mineral pearl*, were miſtaken for them. Cæſar, we are told, brought home a buckler made with Britiſh pearl, which he dedicated to, and hung up in, the temple of Venus Genetrix; a proper offering to the goddeſs of beauty, who was believed to have ſprung from the ſea. It is certain that muſcles, producing pearls of conſiderable ſize and excellent luſtre, are ſtill found in ſeveral rivers of Scotland; particularly in the Ythan and Cluny in Aberdeenſhire; in the Devon, Clackmannanſhire; the Dee, Kirkcudbrightſhire; and in the Tay and Teath, Perthſhire. About 30 years ago, when there was a great demand for pearls at London, the rev. Dr James Robertſon ſays, that ſome of the country people in the pariſh of Callander made L.100 in the ſeaſon, by fiſhing for them. (*Stat. Acc.* XI. p. 599.) The Rev. Mr Bannerman, of Cargill, ſays, "There is in the cuſtody of the Hon. Mrs Drummond of Perth, a pearl necklace, which has been in the poſſeſſion of the ladies of that noble family for ſeveral generations, the pearls of which were found here in the Tay, and for ſize and ſhape are not to be equalled by any thing of the kind in Britain." (*Stat. Acc.* XIII, 532.) Pliny ſays, that a red ſmall kind was found about the Thracian Boſphorus, in a ſhell called *mya;* but does not give it any mark to aſcertain the ſpecies. This fiſh will bear removal remarkably well; and it is ſaid, that in ſome places they form reſervoirs for the purpoſe of keeping it, and taking out the pearl, which, in a certain period of time, will be again renewed. From obſervations on the growth of theſe ſhells, and the number of

their annular laminæ or ſcales, it is ſuppoſed the fiſh will attain a very great age; 50 or 60 years are imagined to be a moderate computation. Linnæus diſcovered a method of putting theſe ſhell-fiſh into a ſtate of producing pearls at his pleaſure. He ſays, that in 5 or 6 years after the operation, the pearl would have acquired the ſize of a vetch. We are unacquainted with the means by which he accompliſhed this extraordinary operation; but it was conſidered as important, as he was rewarded with a munificent premium from the ſtates of the kingdom on this account. It is probable, from a paper publiſhed many years afterwards in the *Berlin Acts*, that the method conſiſted in injuring the ſhell externally, perhaps by a perforation; as it has been obſerved, that theſe concretions in ſhell-fiſh are found on the inſide, exactly oppoſite to perforations and injuries made from without by ſerpulæ and other animals.

3. Mya pictorum has an oval brittle ſhell, with a ſingle longitudinal tooth like a lamina in one ſhell, and two in the other; the length is a little above two inches, the breadth one. See *fig.* 4. It inhabits rivers. The ſhells are uſed to put water-colours in; whence the name. Otters feed on this and the other freſh-water ſhell-fiſh.

MYAGRUM, Gold of Pleaſure, in botany; a genus of the ſiliculoſa order, belonging to the tetradynamia claſs of plants; and in the natural method ranking under the 39th order, *Siliquoſæ*. The ſilicula is terminated by an oblong ſtyle; the cell generally monoſpermous. There are 5 ſpecies; but the only remarkable one is,

Myagrum ſativum, which grows naturally in corn fields in the ſouth of France and Italy, and in ſome parts of Britain. It is an annual plant, with an upright ſtalk a foot and an half high, ſending out 2 or 4 ſide branches, which grow erect; the flowers grow in looſe ſpikes at the end of the branches, ſtanding upon ſhort footſtalks an inch long; they are compoſed of 4 ſmall yellowiſh petals, in form of a croſs; theſe are ſucceeded by oval capſules, which are bordered and crowned at the top with the ſtyle of the flower, having two cells filled with red ſeeds.—This is cultivated in Germany for the ſake of the expreſſed oil of the ſeeds, which the inhabitants uſe for medicinal, culinary, and œconomical purpoſes. The ſeeds are a favourite food with geeſe. Horſes, goats, ſheep, and cows, eat the plant.

MYAGRUS. See Myiagrus.

(1.) MYCALE, a promontory of Aſia oppoſite Samos, celebrated for a battle which was fought there between the Greeks and Perſians about the year of Rome 275. The Perſians were about 100,000 men, who had juſt returned from the unſucceſsful expedition of Xerxes in Greece.—They had drawn their ſhips to the ſhore, and fortified themſelves ſtrongly, as if determined to ſupport a ſiege. They ſuffered the Greeks to diſembark from their fleet without moleſtation, and were ſoon obliged to give way before the cool and reſolute intrepidity of an inferior number of men. The Greeks, under Leotychides, K. of Sparta, obtained a complete victory, ſlaughtered ſome thouſands of the enemy, burned their camp, and ſailed back to Samos with an immenſe booty, in which were 70 cheſts of money.

(2, 3.) Mycale, a city and mountain of Caria.

MYCALESSUS, an inland town of Bœotia, where Ceres had a temple. *Pauſan*, ix, *c.* 19.

MYCENÆ, in ancient geography, a town of Argolis, in Peloponneſus. The kingdom of the Argives was divided into two portions by Acriſius and his brother Prœtus. Argos and Mycenæ were their capitals.—Theſe, as belonging to the ſame family, and diſtant only about 50 ſtadia or ſix miles and a quarter from each other, had one tutelary deity, Juno, and were jointly proprietors of her temple, the Heræum, which was near Mycenæ. It was here that Agamemnon reigned. He enlarged his dominions by his valour; and poſſeſſed, beſides Mycenæ, the region about Corinth and Sicyon, and that called afterwards Achæa. On his return from Troy, he was ſlain, with his companions, at a banquet, by his adulterous wife Clytemneſtra, and her paramour Ægiſthus. See Ægiſthus, Agamemnon and Clytemneſtra. Mycenæ then declined; and under the Heraclidæ was made ſubject to Argos. (See Argos and Argeia.) The Mycenæans, ſending 80 men, partook with the Lacedæmonians in the glory acquired at Thermopylæ. The jealouſy of the Argives produced the deſtruction of their city, which was abandoned after a ſiege, and laid waſte in the firſt year of the 78th Olympiad, or 466 years before Chriſt. Some part of the wall remained in the ſecond century, with a gate, on which were lions, a fountain, the ſubterraneous edifices where Atreus and his ſons had depoſited their treaſures; and, among other ſepulchral monuments, one of Agamemnon, and one of his fellow-ſoldiers and ſufferers.

MYCETITES diſcoides, in natural hiſtory, a name given by Dr Woodward to thoſe kinds of foſſile coralloide bodies which moſt writers had called, after Dr Plott, Porpitæ. Theſe are uſually ſmall, and of a roundiſh, but flatted figure: hollowed on one ſide with a ſort of umbilicus, and ſtriated on the other; they are found on the ploughed lands in Oxfordſhire, and ſome other of our midland counties and in other places, buried in the ſolid ſtrata of ſtone; they are ſometimes yellowiſh, ſometimes browniſh, and are from the breadth of an inch to a 4th part or leſs of that ſize; when broken, they are uſually found to conſiſt of a kind of ſpar, not unlike that of which the ſhelly coats of the echinitæ, or the lapides indici, and other ſpines of echini conſiſt in their foſſile ſtate; and in ſome of them the ridges and ſtriæ are thick ſet with little knobs and tubercles. The baſis in ſome of theſe is flat, as it is in others riſing in form of a circular elevation from the umbilicus, and others have a circular cavity in the ſame place. See Porpites; and *Plate* CCXXIX.

MYCITHUS, regent of Rhegium. On the death of Anaxilaus, he was entruſted with the care of his children and the government of the kingdom, which he conducted with great popularity and fidelity; and reſtored the kingdom to the princes when they grew up. *Juſtin* iv. 2.

(1.) MYCONE, an iſland of the Archipelago, about 36 miles in circuit. The people are ſaid to be the beſt ſailors in the Archipelago, and have about 150 veſſels of different ſizes. The iſland yields a ſufficient quantity of barley for the inhabitants,

habitants, and produces abundance of figs, and ſome olives; but there is a ſcarcity of water, eſpecially in ſummer, there being but one well on the iſland.—There are many churches and chapels, with ſome monaſteries. The dreſs of the women is as different from that of the other iſlands, as that of thoſe iſlanders is different from the dreſs of the other European ladies. Their heads are adorned with lively-coloured turbans; their garments are a ſhort, white ſhift, plaited before and behind, which reaches to their knees; they have white linen drawers, and red, green, yellow, or blue ſtockings, with various coloured ſlippers. An ordinary ſuit for the ſuperior ranks will coſt 200 crowns.

(2.) Mycone, the capital of the above iſland, containing about 3000 inhabitants. Lon. 25. 51. E. Lat. 37. 28. N.

MYCONIANS, } the natives of Myconos.
MYCONII, } They were noted for baldneſs: hence *Myconius* was uſed for a bald perſon. Strabo ſays, they became bald at the age of 20 or 25. Pliny ſays, their children were born without hair.

MYCONOS, or } in ancient geography, one of
MYCONUS, } the Cyclades, near Delos, under which the giants and Centaurs ſlain by Hercules are feigned to lie buried. Hence the proverb, *Omnia ſub Myconum congerere* (*i. e.* every thing lies under Myconus), applied to an injudicious or unnatural farrago. The iſland was poor, and the inhabitants very avaricious; whence Archilochus reproached Pericles, that he came to a feaſt like a Myconian; that is, without previous invitation. It is now called Mycone.

MYCTERIA, the Jabiru, in ornithology; a genus of birds belonging to the order of grallæ. The bill is long, bending upwards, and acute; the noſtrils are ſmall and linear; there is no tongue; and the feet have 4 toes. There are two ſpecies:

1. Mycteria Americana, the *American jabiru*, is about the ſize of a turkey. The bill is long, ſtout, and of a black colour: the whole plumage is white, except the head, and about two thirds of the neck, which are bare of feathers and of a blackiſh colour; the remainder is alſo bare, and of a fine red; on the hind head are a few greyiſh feathers; the legs are ſtrong, of a great length, and covered with black ſcales; wings and tail even at the end. (See *Plate* CCXXXI.) This ſpecies is found in all the ſavannas of Cayenne, Guiana, and other parts of South America. They are migratory and gregarious. The female makes its neſt in great trees, which grow on the borders; lays two eggs, and brings up the young in the neſt till they can deſcend to the ground. The colour of the young bird is grey; in the 2d year it changes to roſe-colour; and in the 3d to pure white. They are very wild and voracious, and devour fiſh in great quantities. The fleſh of the young birds is ſaid to be good, but that of the old is hard and oily.

2. Mycteria Asiatica, the *Indian jabiru*, is of a large ſize. The bill is duſky, almoſt ſtraight above, and gibbous near the fore-head; the under mandible ſwelled beneath; and from the baſe of the bill there paſſes through and beyond the eye a black ſtreak. The general colour of the plumage is white; the lower half of the back, the prime quills, and the tail, are black; the legs a pale red. This ſpecies inhabits the Eaſt Indies, and feeds on ſnails.

MYDRECHT, a town of Holland, in the dep. of Delft, and late prov. of Utrecht, 16 miles WSW. of Utrecht.

(1.) MYGDONIA, in ancient geography, a diſtrict of Macedonia, N. of the Sinus Thermaicus, and E. of the river Axius, which ſeparates it from Bottiæis, and W. of the Strymon. (*Pliny.*)

(2.) Mygdonia, a diſtrict of Meſopotamia, ſo named from that of Macedonia, extending far E. along the Euphrates, from Zeugma down to Thapſacus. Niſibis was reckoned to it.

MYGINDA, in botany, a genus of the tetragynia order, belonging to the tetrandria claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. The calyx is quadripartite; the petals 4; the fruit a globoſe plum.

MYIAGRUS Deus, in heathen mythology, a name given ſometimes to Jupiter, and ſometimes to Hercules, on occaſion of their being ſacrificed to, for driving away the vaſt numbers of flies which infeſted the ſacrifices on certain public occaſions. The word is uſually ſpelt Myagrus; but this muſt be an error, as this word does not expreſs the *fly-deſtroyer*, but the *mouſe-deſtroyer*; and we have it ſufficiently teſtified by the ancients, that flies were the only creatures againſt whom this deity was invoked. Pliny calls this deity Myiodes, and ſays, that the flies which uſed to peſter the Olympic rites went away in whole clouds on the ſacrificing a bull to this god. We find in Athenæus alſo, that this ſacrificing to the god of flies at the Olympic games was a conſtant cuſtom. Some diſtinguiſh theſe two deities, and tell us that Myiodes uſed to viſit the nations in vengeance, with a vaſt multitude of flies; and that, on paying him the due honours of a ſacrifice, they all went away again. At the Olympic games, Jupiter was worſhipped under the name of *Apomyos*, or *Myiagrus Deus*. (See Apomyos.) This happened only once in many years; but the Elians worſhipped him continually under this name, to deprecate the vengeance of heaven, which uſually ſent an army of flies and other inſects, about the end of ſummer, that infeſted the country with peſtilence.

MYIODES DEUS. See Myiagrus.

(1.) MYLÆ, in ancient geography, a Greek city ſituated on an iſthmus of a cognominal peninſula, on the NE. ſide of the iſland.

(2.) Mylæ, a town built by the people of Zancle. (*Strabo.*) Mylæus, the epithet, as Mylæus Campus, mentioned by Polybius; now called Melazzo. See Melazzo, N° 1.

MYLÆI, the people of Mylæ.

MYLASA, or } in ancient geography, a noble
MYLASSA, } city of Caria in Aſia Minor, ſituated about 9 miles from the *Sinus Ceramicus*. It was the capital of Hecatomnus, king of Caria, the father of Mauſolus. Pliny ſpeaks of Menander, king of Caria, and ſays that the Rhodians preſerved with the greateſt care his portrait painted by Apelles; but it was not in honour of this Menander

under that a Corinthian pillar was erected at Mylaſa, which ſtill exiſts, and on which is to be ſeen the following inſcription: "The people erected this pillar in honour of Menander, the ſon of Uliades, and grandſon of Euthydemus, the benefactor of his country, and whoſe anceſtors rendered it great ſervices alſo." Euthydemus, the grandfather of this Menander, lived in the time of Julius Cæſar and Auguſtus. Caria was taken by Mithridates, and afterwards by Labienus, whoſe father had been one of Cæſar's generals. Hybrias, whoſe eloquence and valour deſervedly entitled him to a diſtinguiſhed rank among his countrymen, in vain encouraged them to defend it, when it was beſieged by the latter. He himſelf was obliged to yield to neceſſity, and to take refuge at Rhodes: but ſcarcely had the conqueror quitted the city, when Hybrias returned, and reſtored liberty to his country. He alſo deſtroyed the power of an ambitious citizen, whoſe riches and talents had rendered him a neceſſary evil. Euthydemus, often baniſhed, and as often recalled, always too powerful in a ſtate, the independence of which he threatened, ſaw his ambition checked by the zeal and activity of Hybrias. The Romans left to Mylaſa that liberty of which it rendered itſelf ſo worthy by the great efforts it made to preſerve it. Pliny calls it *Mylaſa libera.* Strabo informs us, that it was one of the moſt magnificent cities of antiquity, and one of thoſe, the temples, porticoes, and other public monuments of which were highly admired. A quarry of white marble in the neighbourhood furniſhed it with abundance of materials for erecting theſe edifices. The Mylaſians had two temples dedicated to Jupiter, one ſituated in the city, which was named *Oſogo*, and another on a mountain, 60 leagues diſtant. The latter was dedicated to *Jupiter Stratius*, Jupiter the Warrior. His ſtatue, which was very ancient, inſpired great veneration; people came from all quarters to implore his protection; and for the greater accommodation of his votaries a paved way was conſtructed, which reached from Mylaſa to this venerable fabric. This city is now called *Melazzo*, or *Melaſſo*, and, according to Dr Chandler, is ſtill a large place. (See MELAZZO, N° 2.) The houſes are numerous, but mean, and chiefly of plaſter, with trees interſperſed. The air is bad, and ſcorpions abound, entering often at the doors and windows, and lurking in the rooms. The plain is ſurrounded by lofty mountains, and cultivated. Round the town are ranges of broken columns, the remnants of porticoes, now with rubbiſh bounding the vineyards. A large portion of the plain is covered with ſcattered fragments, and with piers of ordinary aqueducts; beſides inſcriptions, moſtly ruined and illegible. Some altars dedicated to Hecatomnus have been diſcovered. Of all the ancient temples which formerly ornamented this city, one only eſcaped the power of time, the blind zeal of the early Chriſtians, and the barbarous ſuperſtitition of the Mahometans. This monument was dedicated to Auguſtus and the divinity of Rome. When Pococke viſited Melaſſo, it was perfect and entire; but at preſent no traces of it remain except a few fragments, which have been employed to conſtruct a Turkiſh moſque.

MYLENSES, the natives of Mylæ.

MYLITTA, a name of Venus among the Aſſyrians. In her temples the women were obliged to proſtitute themſelves to ſtrangers. *Herodot.* L. i. c. 131, 139.

MYLOGLOSSUM. See ANATOMY, § 201, 6.

MYLOHYOIDÆUS. See ANATOMY, § 201, 3.

MYLOPHARYNGÆUS. See ANATOMY, § 203.

* MYNCHEN. *n. ſ.* [*myncben*, Sax.] A nun. *Dict.*

MYNDUS, a ſea port town of Caria, near Halicarnaſſus.

MYNES, king of Lyrneſſus in Cilicia, the huſband of Briſcis. See BRISEIS.

MYNIÆ. See MINYÆ.

MYNOW. See MINNOW.

MYNSICHT, Hadrian, phyſician to the duke of Mecklenburgh and ſeveral other German princes, was diſtinguiſhed for his knowledge of chemiſtry, at the beginning of the 17th century. He publiſhed a work entitled *Armentarium Medico-Chymicum*, which has undergone various editions; but his deſcription of ſeveral medicines and their virtues is not always to be depended upon. He diſcovered the *ſal de duobus*, or *Arcanum*, which is ſtill in uſe.

MYOCASTORES. See MUS, § III, N° 40, 41.

* MYOGRAPHY. *n. ſ.* [μυογραφια.] A deſcription of the muſcles.

(1.) * MYOLOGY. *n. ſ.* [*myologie*, Fr.] The deſcription and doctrine of the muſcles.—To inſtance in all the particulars, were to write a whole ſyſtem of *myology*. *Cheyne's Phil. Principles.*

(2.) MYOLOGY is derived from μυς, *a muſcle*, and λογος, *diſcourſe*; and is that branch of anatomy which treats of the MUSCLES See ANATOMY, *Ind.*

MYOMANCY, *n. ſ.* a kind of divination, or method of foretelling future events by means of mice. Some authors hold myomancy to be one of the moſt ancient kinds of divination; and think it is on this account that Iſaiah, lxvi. 17. reckons mice among the abominable things of the idolators. But, beſides that it is not certain that the Hebrew word עכבר, uſed by the prophet, ſignifies *a mouſe*, it is evident it is not the divination by that animal, be what it will, that is ſpoken of, but the eating it.

MYONIA, a town of Phocis. *Pauſan.*

MYOPIA, SHORT-SIGHTEDNESS; a ſpecies of viſion wherein objects are ſeen only at ſmall diſtances. See MEDICINE, *Index*, and OPTICS.

* MYOPY. *n. ſ.* [μυωψ.] Shortneſs of ſight.

MYOSOTIS, SCORPION-GRASS, a genus of the monogynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 41ſt order, *Aſperifoliæ.* The corolla is ſalver-ſhaped, quinquefid, and emarginated; the throat ſhut up by ſmall arches. There are 4 ſpecies; of which the moſt remarkable is

MYOSOTIS SCORPIOIDES, the MOUSE-EAR. This is a native of Britain, growing naturally in dry fields, and on the margins of ſprings and rills. It hath naked ſeeds, and the points of the leaves callous. It varies conſiderably in different ſituations. In dry places the plant and flowers are ſmaller; in moiſt ones both are larger, and ſometimes hairy. The bloſſoms vary from a full blue to a very pale one, and ſometimes a yellow; and appear in a long ſpirally twiſted ſpike. When it grows in the water, and its taſte and ſmell is thereby rendered leſs obſervable, ſheep will ſometimes eat it; but it is generally fatal to them. Cows, horſes, ſwine, and goats refuſe it.

MYOSURI, in zoology. See Mus, § III.

MYOSURUS, Mouse-tail, in botany, a genus of the polygynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 26th order, *Multiſiliquæ*. The calyx is pentaphyllous, the leaves cohering at the baſe; there are 5 ſubulated nectaria reſembling petals: the ſeeds are numerous.

MYOTALPÆ. See Mus, § III. N° 42—46.

MYOXUS the Dormouse, in zoology; a genus of quadrupeds belonging to the order of glires; formerly included by Linnæus under the genus Mus. There are 2 fore feeth in each jaw; the upper ones cuneated, the under compreſſed: the whiſkers are long; the tail is hairy and round, growing thicker towards the extremity; the fore and hind legs are of equal length, and the fore feet have 4 toes. There are 4 ſpecies:

1. Myoxus Dryas, the *Wood Dormouſe*, is of a reddiſh brown or tawny grey colour on the upper, and a dirty white on the under parts of the body; having a black line from ear to ear acroſs the eyes. It differs from the garden dormouſe only in colour, and in having a ſhorter and more buſhy tail, and in wanting the black ſpots near the ears. Dr Gmelin, however, ranks them as diſtinct ſpecies. See N° 4.

2. Myoxus Glis, the *hoary dormouſe*, is of a pale aſh-colour on the upper parts of the body, and whitiſh on the under; and is about the ſize of the common ſquirrel, but thicker in the body. (See *Plate* CCXXXI. *fig.* 1.) It inhabits France, the S. of Europe, and the SW. of Ruſſia about the Volga. This animal, which is the ελειος of Aristotle, μυοξος of Oppian, and *glis* of Pliny, was held in great eſteem among the Romans, as a luxurious delicacy: they were fed in places called *gliriaria*, conſtructed for the purpoſe; and they are ſtill eaten by the modern Italians. It forms a neſt in the hollow of ſome tree, in which it ſleeps all day: feeds in the night on nuts, walnuts, the ſeeds of apples, &c. and grows very fat in autumn. About October they gather in troops; and, retiring into ſubterranean burrows, remain torpid till near the end of May. The female has 10 teats, 6 of which are ſituated on the breaſt, and 4 on the belly; and ſhe brings forth from 9 to 12 young ones at a litter.

3. Myoxus Muscardinus, the common dormouse, is about the ſize of the domeſtic mouſe, but of a plumper appearance; the noſe is more blunt; the head, ſides, belly, and tail, are of a tawny red colour, the throat white. (See *Plate* CCXXXI, *fig.* 2.) Dormice inhabit woods, or very thick hedges; forming their neſts in the hollow of ſome low tree, or near the bottom of a cloſe ſhrub: they form magazines of nuts, and eat in an upright poſture like the ſquirrel. The conſumption of their hoard, however, during the rigour of the ſeaſon is but ſmall; for they ſleep moſt of the time, retiring into their holes: at the approach of winter they roll themſelves up, and become torpid. Sometimes they experience a ſhort revival in a warm ſunny day, when they take a little food, and relapſe into their former ſtate. Theſe animals ſeldom appear far from their retreats, or in any open place; whence they ſeem leſs common in Britain than they really are. They make their neſts of moſs, graſs, and dead leaves; and bring 3 or 4 young at a time.

4. Myoxus Nitela, the *garden dormouſe*, is of a tawny colour on the upper parts of the body, and whitiſh aſh tinged with yellow on the under; has a black circle round each eye, and a black ſpot behind each ear; and is 5 inches long, beſides the tail, which meaſures 4. (See *Plate* CCXXXVI.) They inhabit the S. parts of Europe and Ruſſia, and live chiefly in gardens, though ſometimes found in houſes. They are very deſtructive to fruit, particularly peaches, which they prefer to every other kind. They alſo eat peaſe, apricots, and plums; and when ſoft fruits are not to be had, they will eat almonds, filberts, nuts, and even leguminous plants. Of theſe they carry off great quantities into their retreats, which they dig in the earth, and particularly in well cultivated gardens; for in old orchards they are often found in hollow trees, where they make beds of herbs, moſs, and leaves: 8 or 10 of them are often found in the ſame place, benumbed, and rolled up in the midſt of their proviſion of fruit and nuts. They copulate in ſpring, and bring forth in ſummer, 5 or 6 young, who grow very quickly, but are not fertile till the next year. Their fleſh is not eatable, but has the ſame diſagreeable odour with the domeſtic rat.

MYRA, a town of Lycia, on a high hill, 2 miles from the ſea. Plin. v. 27. Strabo xiv.

MYREPSUS, Nicolas, was a phyſician of Alexandria, to whom we are under great obligations for collecting into a kind of pharmacopœia, all the compound medicines mentioned in the works of the Greek and Arabian writers. His work was completed before the beginning of the 14th century; and though written in barbarous Greek, continued for a long time to be the rule of pharmaceutical preparations in Europe. A tranſlation of it into Latin by Leonard Fuſch is entitled *Opus Medicamentorum, in Sectiones* xlviii *digeſtum*. There are many editions; the beſt is that of Herman Beverus, Nuremberg, 1658. 8vo.

* MYRIAD. *n ſ.* [μυριας.] 1. The number of ten thouſand. 2. Proverbially any great number.

> Of all thoſe *myriads*, which we lead, the chief. *Milton.*

—Are there legions of devils who are continually deſigning and working our ruin? there are alſo *myriads* of good angels who are more cheerful and officious to do us good. *Tillotſon.*—

> Safe ſits the goddeſs in her dark retreat;
> Around her, *myriads* of ideas wait. *Prior.*

MYRIAGRAMME, }
MYRIALITRE, and } terms uſed in the new French ſyſtem of meaſures. See Measure,
MYRIAMETRE; }
§ X. i—iii. Milligramme, Millilitre, &c.

MYRIANDROS, a town of Syria, in Seleucia, on the bay of Lous; thence called *Sinus Myriandricus*. *Liv.* ii. 108.

MYRIARE, and }
MYRIASTERE, } terms uſed in the new French ſyſtem of meaſures. See
Measure, § X. i—iii. Milolit, &c.

MYRICA, **Gale**, or **Sweet Willow**, in botany; a genus of the tetrandria order, belonging to the diœcia claſs of plants: and in the natural method ranking under the 5th order, *Amentaceæ*. The ſcale of both the male and female catkin is in the form of a creſcent; there is no corolla; but two ſtyles, and a monoſpermous berry. There are 7 ſpecies, viz.

1. i. **Myrica Cerifera**, *wax-bearing myrica*, or *candleberry myrtle*, a native of North America. It is a ſmall tree about 10 or 12 feet high, with crooked ſtems branching forth near the ground irregularly. The leaves grow irregularly on them all round; ſometimes by pairs, ſometimes alternately, but generally at unequal diſtances. They are of a lanceolated figure; and ſome are ſerrated at the top, while others have their edges wholly entire. They ſtand on very ſhort footſtalks; having their upper ſurface ſmooth, and of a ſhining green colour, and the under of a more duſky hue. The branches of the old plant ſhed their leaves in autumn: but the young plants raiſed from ſeeds retain them the greateſt part of the winter. There are both male and female trees of this ſpecies; the flowers are ſmall, of a whitiſh colour, and make no figure; neither does the fruit, which is a ſmall, dry, blue berry, though produced in cluſters, make any ſhow: It is from the leaves this tree receives its beauty and value; for theſe being bruiſed, with the bark of the young ſhoots, emit the moſt refreſhing and delightful fragrance, exceeded by no myrtle, or any other aromatic ſhrub.—There is a variety of this ſpecies: viz.

ii. **Myrica Cerifera Carolinensis**. It is of lower growth, with ſhorter but broader leaves, of equal fragrance; and grows in Carolina, where the inhabitants collect from its berries a wax of which they make candles; whence it is called the *candleberry tree*. It delights in a moiſt ſoil.—The wax is procured in the following manner: In November and December, when the berries are ripe, a man with his family will remove from home to ſome iſland or ſand-bank near the ſea, where theſe trees moſt abound, taking with them kettles to boil the berries in. He builds a hut with palmetto leaves for the ſhelter of himſelf and family during his reſidence there, which is commonly 4 or 5 weeks. The man cuts down the trees, while the children ſtrip off the berries into a pot; and having put water to them, they boil them till the oil floats, which is then ſkimmed off into another veſſel. This is repeated till no more oil appears. When cold, this hardens to the conſiſtence of wax, and is of a dirty green colour. Then they boil it again, and clarify it in braſs kettles; which gives it a tranſparent greenneſs. Theſe candles burn a long time, and yield a grateful ſmell. They uſually add a fourth part of tallow, which makes them burn clearer.

2. **Myrica Communis**, the **Gale**, *Dutch myrtle*, or *ſweet willow*, grows naturally upon bogs in many places both of Scotland and England. It riſes about 4 feet high, with many ſhrubby ſtalks, which divide into ſeveral branches, garniſhed with ſtiff ſpear-ſhaped leaves of a light yellowiſh green, ſmooth, and a little ſawed at their points. The female flowers or catkins are produced from the ſides of the branches, growing upon ſeparate plants from the male, which are ſucceeded by cluſters of ſmall berries, each having a ſingle ſeed. It flowers in July, and ripens in autumn. When tranſplanted into ſhrubberies, the moiſteſt parts muſt be aſſigned to it. The leaves, flowers, and ſeeds, of this plant, have a ſtrong fragrant ſmell, and a bitter taſte. They are uſed for deſtroying moths and cutaneous inſects; internally, in infuſions, as a ſtomachic and vermifuge; and as a ſubſtitute to hops for preſerving malt liquors, which they render more inebriating; it is ſaid that this quality is deſtroyed by boiling. Both theſe ſpecies may be propagated by ſeeds or layers. 1. The ſeeds of the candleberry myrtle we receive from abroad; thoſe of the ſweet gale from the bogs where they grow in England or Scotland. The beſt way is to ſow them in boxes of earth from a rich paſture, well broken and fine. They ſhould be ſown about half an inch deep; and when the hot weather comes on ſet in the ſhade. They often remain until the 2d year before they come up, eſpecially thoſe ſeeds that come from abroad. If the boxes are ſet in the ſhade, and the plants come up, they will require no other trouble the firſt ſummer than keeping clean from weeds; in winter they ſhould be removed to a warm hedge or wall, where they may enjoy the benefit of the ſun. In the following ſpring they will come up in plenty. In the beginning of May they ſhould reſume their ſhady ſituation; and in ſummer they will require no other trouble than weeding and watering in dry weather. In winter they ſhould be removed into a well-ſheltered place; and this may be repeated two years; when in ſpring they ſhould be taken out of the boxes, and planted in the nurſery at about a foot aſunder. 2. They may be alſo eaſily propagated by layers; for this operation being performed on the young wood in the autumn, will occaſion them to ſhoot good roots by the autumn following; many of which will be good plants, fit for any place. 3. Theſe plants may likewiſe be increaſed by ſuckers, which many of them often throw out in vaſt plenty; ſo that theſe being taken out, the ſtrongeſt and beſt rooted may be finally ſet out; whilſt the weaker and thoſe with leſs root may be planted in the nurſery.

3. **Myrica Cordifolia**, the *heart-leaved myrtle*, with ſubcordated, ſawed, ſeſſile leaves; a native of the Cape of Good Hope.

3 **Myrica Ethiopica**, the *willow-leaved myrica*, with the leaves ſlightly ſerrated; a native of Ethiopia.

5 **Myrica Nagi**, the *Japan myrica*, with lanceolet entire veinleſs leaves, and berries about the ſize of a cherry.

6. **Myrica Quercifolia**, with oblong leaves, ſinuated or notched on the ſides, like the leaves of the oak; of which there are two varieties, the ſmooth and the hairy, natives of the Cape.

7. **Myrica Trifoliata**, the *trifoliate myrica*, with ternate leaves, toothed on the edges; is a native of the Cape of Good Hope. Theſe 5 ſpecies are all tender plants, kept as curioſities in the green-houſe, and not eaſily propagated.

MYRINA, a ſea-port town of Æolia; called alſo *Sebaſtopolis*, and now *Sanderlic*. *Tac. Ann.* ii, 47. *Strabo*, 13.

MYRIOPHYLLUM, in botany, Water Milfoil, a genus of the Polyandria order, in the monœcia claſs of plants; and in the natural method ranking under the 15th order, *Inundatæ*. The male calyx is tetraphyllous; there is no corolla; the ſtamina are 8. The female calyx is tetraphyllous; the piſtils 4: there is no ſtyle; and 4 naked ſeeds.

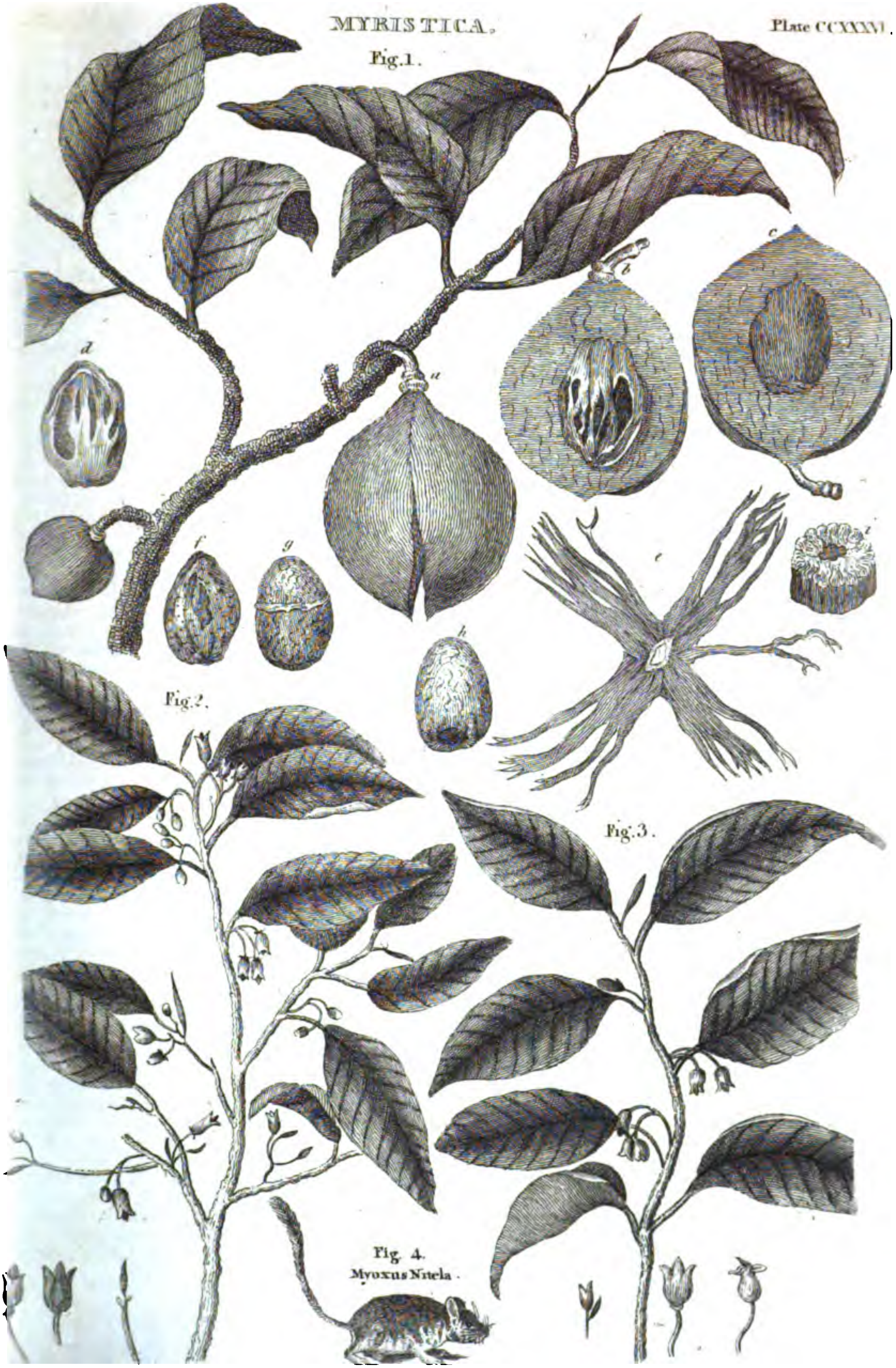
MYRISTICA, the Nutmeg tree, in botany; a genus of plants belonging to the claſs diœcia, and order ſyngeneſia, in the *Nova Genera Plantarum* of Linnæus by *Schreber*; and of the natural order *Lauri*, in his 4th claſs *Monocotyledonis*. But Mr Lee, who doubtleſs has followed the lateſt improvements in botany, in his *Introduction to Botany*, (Lond. Edit. 1794, p. 112 and 288.) as well as the younger Linnæus, ranks it in the claſs *Polyandria* and order of *Monogynia*. (See N° 2.) From the general character of the 2d ſpecies, indeed, of the male and female flowers growing on diſtinct plants, it would ſeem to be properly arranged under the claſs *Diœcia*; but Mr Lee ſays, "many plants which have male and female flowers on diſtinct plants are not admitted to this claſs, becauſe this happens not to the *whole genus*." The male calyx is monophyllous, ſtrong, and parted into three *lacinii* of an oval ſhape, and ending in a point: it has no corolla. In the middle of the receptacle riſes a column of the height of the calyx; to the upper part of which the antheræ are attached. They vary in number from three to 12 or 13. The female calyx and corolla as in the male, on a diſtinct tree. The germen of an oval ſhape; the ſtyle ſhort, with a bifid ſtigma; the lacinii of which are oval and ſpreading.—The fruit is of that ſort called *drupa*. It is fleſhy, roundiſh, ſometimes unilocular, ſometimes bivalved, and burſts when ripe at the ſide. The ſeed is enveloped with a fleſhy and fatty membraneous ſubſtance, which divides the filaments: this, in one of the ſpecies, is the *mace* of the ſhops. (See Mace § 1. *def.* 3; and § 4.) The ſeed or nutmeg is round or oval ſhaped, unilocular, and contains a ſmall kernel, variegated on the ſurface by the fibres running in the form of a ſcrew. There are 5 ſpecies, according to ſome authors; but ſeveral of theſe being only varieties, they may be reduced to three, viz.

2. Myristica Fatua, the wild nutmeg: this grows in Tobago, and riſes to the height of an apple-tree; has oblong, lanceolated, downy leaves, and hairy fruit: the nutmeg of which is aromatic, but when given inwardly is narcotic, and occaſions drunkenneſs, delirium, and madneſs, for a time. See a figure in *Gaertner de Sem. et Fruct.* T. 41. f. 3, 4.

2. Myristica Moschata, the nutmeg tree, attains the height of 30 feet, producing numerous branches which riſe together in ſtories, and are covered with bark, which on the trunk is a reddiſh brown, but that on the young branches is of a bright green colour: The leaves are nearly elliptical, pointed, undulated, obliquely nerved, on the upper ſide of a bright green, on the under whitiſh, and ſtand alternately upon footſtalks: the flowers are ſmall, and hang upon ſlender peduncles, proceeding from the axillæ of the leaves: they are both male and female upon ſeparate trees. M. Schwartz, who has carefully examined this as well as the other two ſpecies, preſerved in ſpirits, places them amongſt the monadelphia. But if this ſpecies is to be ſeparated at all from the claſs polyandria, and order monogynia, it ſhould certainly be ranked under thoſe of *Diœcia* and *Syngeneſia*. The nutmeg has been ſuppoſed to be the *Comacum* of Theophraſtus, but there ſeems little foundation for this opinion; nor can it with more probability be thought to be the *Chryſobalanos* of Galen. Our firſt knowledge of it was evidently derived from the Arabians; by Avicenna it was called *jiauſiban*, or *jauſibana*, which ſignifies nut of banda. Rumphius both figured and deſcribed this tree; but the figure given by him is ſo imperfect, and the deſcription ſo confuſed, that Linnæus, who gave it the generic name *myriſtica*, was unable to aſſign its proper characters. Sonnerat's account of the *muſcadier* is ſtill more erroneous; and the younger Linnæus, miſled by this author, places the myriſtica in the claſs *Polyandria*, and deſcribes the corolla as conſiſting of five petals. Thunberg, who examined the flower of the nutmeg, places it in the claſs *Monœcia*; and according to his deſcription, the male flower has but one filament, ſurrounded at the upper part by the antheræ; and as the filaments are ſhort and ſlender, and the antheræ united, this miſtake might eaſily ariſe. M. de La Marck informs us, that he received ſeveral branches of the myriſtica both in flowers and fruit, from the Iſle of France, where a nutmeg tree, which was introduced by M. Poivre in 1770, is now very large, and continually producing flowers and fruit. From theſe branches, which were ſent from M. Cere, director of the king's garden in that iſland, M. De La Marck has deſcribed and figured this and other ſpecies of the myriſtica with tolerable accuracy. See *Plate* CCXXXVI. *fig.* 1. A ſprig with fructification. *a.* The drupa of the natural ſize, and burſting open. *b.* The full-grown fruit cut lenthwiſe. *c.* Another ſection of the ſame. *d.* The nutmeg enveloped with its covering the mace. *e.* The fatty membrane or mace ſpread out. *f.* The nutmeg of its natural ſize. *g.* The ſame with its external tegument removed at one end. *h.* The ſame with its outer tegument entirely removed. *i.* A tranſverſe ſection of the nutmeg. *Fig.* 2 and 3, Sprigs in flower, with a repreſentation of the calyx and column in the flower. The kernels, called nutmegs, are well known, and have been long uſed both for culinary and medical purpoſes. Diſtilled with water, they yield a large quantity of eſſential oil, reſembling in flavour the ſpice itſelf; after the diſtillation, an inſipid ſebaceous matter is found ſwimming on the water; the decoction inſpiſſated, gives an extract of an unctuous, very lightly bitteriſh taſte, and with little or no aſtringency. Rectified ſpirit extracts the whole virtue of nutmegs by infuſion, and elevates very little of it in diſtillation; hence the ſpirituous extract poſſeſſes the flavour of the ſpice in an eminent degre. Nutmegs, when heated, yield to the preſs a conſiderable quantity of limpid yellow oil, which on cooling concretes into a ſebaceous conſiſtence. In the ſhops we meet with 3 ſorts of unctuous ſubſtances, called *oil of mace*, though really expreſſed from the nutmeg.

MYRISTICA.

Plate CCXXXVI.



meg. The beſt is brought from the Eaſt Indies in ſtone jars; this is of a thick conſiſtence, of the colour of mace, and has an agreeable fragrant ſmell: the 2d ſort, which is paler coloured, and much inferior in quality, comes from Holland in ſolid maſſes, generally flat, and of a ſquare figure: the 3d, which is the worſt of all, and uſually called *common oil of mace*, is an artificial compoſition of ſevum, palm oil, and the like, flavoured with a little genuine oil of nutmeg. When the fruit is ripe, the natives aſcend the trees, and gather it by pulling the branches to them with long hooks. Some are employed in opening them immediately, and in taking off the green ſhell or firſt rhind, which is laid together in a heap in the woods, where in time it putrefies. As ſoon as the putrefaction has taken place, there ſpring up a kind of muſhrooms, called *boleti moſchatyni*, of a blackiſh colour, and much valued by the natives, who conſider them as delicate eating. When the nuts are ſtripped of their firſt rhind they are carried home, and the mace is carefully taken off with a ſmall knife. The mace, which is of a beautiful red, but afterwards aſſumes a darkiſh or reddiſh colour, is laid to dry in the ſun for the ſpace of a day, and is then removed to a place leſs expoſed to his rays, where it remains for eight days, that it may ſoften a little. They afterwards moiſten it with ſea-water, to prevent it from drying too much, or from loſing its oil. They are careful, however, not to employ too much water, leſt it ſhould become putrid, and be devoured by the worms. It is laſt of all put into ſmall bags and ſqueezed very cloſe. (See MACE, § 4.) The nuts, which are ſtill covered with their ligneous ſhell, are for 3 days expoſed to the ſun, and afterwards dried before a fire till they emit a ſound when ſhaken; they then beat them with ſmall ſticks to remove their ſhell, which flies off in pieces. Theſe nuts are diſtributed into 3 parcels; the firſt contains the largeſt and moſt beautiful, which are deſtined to be brought to Europe; the 2d contains ſuch as are reſerved for the uſe of the inhabitants; and the 3d contains the ſmalleſt, which are not quite ripe. Theſe are burnt; and part of the reſt is employed for procuring oil by preſſure. A pound of them commonly gives 3 oz. of oil, which has the conſiſtence of tallow, and has entirely the taſte of nutmeg. Both the nut and mace, when diſtilled, afford an eſſential, tranſparent, and volatile oil, of an excellent flavour. The nutmegs which have been thus ſelected would ſoon corrupt if they were not pickled with lime water made from calcined ſhell-fiſh, which they dilute with ſalt water till it attain the conſiſtence of fluid pap. Into this mixture they plunge the nutmegs, contained in ſmall baſkets, two or three times, till they are completely covered over with the liquor. They are afterwards laid in a heap, where they heat, and loſe their ſuperfluous moiſture by evaporation. When they have ſweated ſufficiently, they are then properly prepared, and fit for a ſea voyage. In the iſland of Banda, the fruit of the nutmeg tree is preſerved entire in the following manner: When it is almoſt ripe, but previous to its opening, it is boiled in water and pierced with a needle. They next lay it in water to ſoak for ten days, till it has loſt its ſour and ſharp taſte. They then boil it gently in a ſyrup of ſugar, to which, if they wiſh it to be hard, a little lime is added. This operation is repeated for 8 days, and each time the ſyrup is renewed. The fruit when thus preſerved is put for the laſt time into a pretty thick ſyrup, and is kept in earthen pots cloſely ſhut. Theſe nuts are likewiſe pickled with brine or vinegar; and when they intend to eat them, they firſt ſteep them in freſh water, and afterwards boil them in ſyrup of ſugar. Nutmegs preſerved entire are preſented as deſerts, and the inhabitants of India ſometimes eat them when they drink tea. Some uſe nothing but the pulp; others chew the mace; but they generally throw away the kernal, which is really the nutmeg. Many who perform ſea-voyages to the north chew this fruit every morning. The medicinal qualities of nutmeg are eſteemed aromatic, anodyne, ſtomachic, and reſtringent; and it has been much uſed in diarrhœas and dyſenteries. To many people the aromatic flavour of nutmeg is very agreeable; they however ſhould be cautious not to uſe it in large quantities, as it is apt to affect the head, and even to manifeſt an hypnotic power, in ſuch a degree as to prove dangerous. Bontius ſpeaks of this as a frequent occurrence in India: and Dr Cullen relates a remarkable inſtance of this ſoporific effect, which fell under his own obſervation, and hence concludes that in apoplectic and paralytic caſes this ſpice may be very improper. He obſerves, that a perſon by miſtake took two drams or a little more of powdered nutmeg: he felt it warm in his ſtomach, without any uneaſineſs; but in about an hour after he had taken it he was ſeized with a drowſineſs, which gradually increaſed to a complete ſtupor and inſenſibility; and not long after he was found fallen from his chair, lying on the floor of his chamber in the ſtate mentioned. Being laid a-bed he fell aſleep; but waking a little from time to time, he was quite delirious; and he thus continued alternately ſleeping and delirious for ſeveral hours. By degrees, however, both theſe ſymptoms diminiſhed; ſo that in about ſix hours from the time of taking the nutmeg he was pretty well recovered from both. Although he ſtill complained of head-ach, and ſome drowſineſs, he ſlept naturally and quietly the following night, and next day was in his ordinary health. The officinal preparations of nutmeg are a ſpirit and eſſential oil, and the nutmeg in ſubſtance roaſted, to render it more aſtringent. Both the ſpice itſelf and its eſſential oil enter ſeveral compoſitions, as the confectio aromatica, ſpiritus ammoniæ com. &c. Mace poſſeſſes qualities ſimilar to thoſe of the nutmeg, but is leſs aſtringent, and its oil is ſuppoſed to be more volatile and acrid. Nutmeg trees grow in ſeveral iſlands in the eaſtern ocean. The wood-pigeon of the Moluccas is a great planter of theſe trees. The Dutch long monopolized the trade. See NUTMEG, § 2.

3. MYRISTICA SEBIFERA, (the *Virola Sebifera of Aublet*, p. 904. Tab. 345.) a tree frequent in Guiana, riſing to forty or even to ſixty feet high; on wounding the trunk of which, a thick, acrid, red juice runs out. Aublet ſays nothing of the nutmegs being aromatic; he only obſerves,

that a yellow fat is obtained from them, which ſerves many œconomical and medical purpoſes, and that the natives make candles of it.

MYRLEA. See Apamea, N° 1.

MYRMECOPHAGA, the Ant-bear, in zoology; a genus of quadrupeds, belonging to the order of bruta: there are no teeth in the mouth; the tongue is long and cylindrical; the head terminates in a long ſnout or muzzle; and the body is covered with pretty long hair. See *Pl.* CCXXIX. There are 6 ſpecies, viz.

1. Myrmecophaga capensis, the *Cape ant-bear*, has four claws on the fore paws; a long ſnout; large pendent ears; and a tail, which is ſhorter than the body, and taper at the point. It inhabits the country at the Cape of Good Hope.—This ſpecies is much larger than any other ſpecies; Kolben compares it to the ſize of a hog, and aſſerts that it weighs 100 lb. It burrows in the ground, ſleeps during the day, and only goes abroad at night.

2. Myrmecophaga didactyla, the little ant-bear, hath a conic noſe bending a little down; ears ſmall, and hid in the fur; two hooked claws on the fore feet, the exterior being much the largeſt; four on the hind feet; the head, body, limbs, and upper part and ſides of the tail, covered with long ſoft ſilky hair, or rather wool, of a yellowiſh brown colour; from the noſe to the tail it meaſures 7½ inches; the tail 8½, the laſt 4 inches of which on the under ſide are naked. It is thick at the baſe, and tapers to a point. It inhabits Guinea, climbs trees in queſt of a ſpecies of ants which build their neſts among the branches, and has a prehenſile power with its tail.

3, i. Myrmecophaga jubata, the *great ant-bear*, has a long ſlender noſe, ſmall black eyes; ſhort round ears; a ſlender tongue, two feet and an half long, which lies double in the mouth; the legs ſlender; 4 toes on the fore feet, 5 on the hind; the two middle claws on the fore feet very large, ſtrong, and hooked; the hair on the upper part of the body is half a foot long, black mixed with grey; the fore-legs are whitiſh, marked above the feet with a black ſpot; the tail is clothed with very coarſe black hair a foot long: the length from the noſe to the tail about 4 feet; the tail two feet and an half. This animal inhabits South America, and the kingdom of Congo in Africa. It covers itſelf with its tail when aſleep and to guard againſt rain. Its fleſh is eaten by the natives of America. At a diſtance it has the appearance of a fox, and therefore ſome travellers have called it the *American fox*. He has ſtrength ſufficient to defend himſelf from a large dog, or even from the jaquar or Brazilian cat. When attacked, he at firſt fights on end, and, like the bear, annoys his enemy with the claws of his fore feet, which are very terrible weapons.—He then lies down on his back, and uſes all the 4 feet, in which ſituation he is almoſt invincible; and continues the combat to the laſt extremity. Even when he kills his enemy, he quits him not for a long time after. He is enabled to reſiſt better than moſt other animals, becauſe he is covered with long buſhy hair; his ſkin is remarkably thick; his fleſh has little ſenſation; and he is very tenacious of life.

ii. Myrmecophaga jubata sima, is a variety, which has a ſhorter muzzle and ſhorter legs than the above, and leſs diſtance between the eye and ear. The hair on the ſides of the body is 2½ inches long, and as hard as that of a wild boar; the colour a mixed deep brown, and dirty white. The length of the body and head is 3 feet 11 inches. It inhabits Guinea.

4. Myrmecophaga pentadactyla, the *five-toed ant-eater*, has 5 toes on the fore paws, and a long flat hairy tail. The head is thick, the upper jaw and ſnout very long; the hair long, tawny, and ſtriped with black or duſky; the body is 13 inches long, and 10 high; the tail 7.

5. Myrmecophaga tetradactyla, the middle ant-bear, has 4 toes on the fore feet, and 5 on the hind, with a tail naked at the extremity; the length from the noſe to the tail is 1 foot 7 inches, and the tail 10 inches. It inhabits South America.

6. Myrmecophaga tridactyla, the tamandua guaca, or tamanoir, has 3 toes on the fore feet, 5 on the hind feet, and long hair on the tail. This animal is about 4 feet long, and the head and ſnout about 15 inches: it is a native of the Eaſt Indies, and feeds on ants, &c. in the ſame manner as the didactyla. See N° 2.—All theſe ſpecies have many properties in common with each other, both in their ſtructure and manner. They all feed upon ants, and plunge their tongues into honey and other liquid or viſcid ſubſtances. They readily pick up crumbs of bread, or ſmall morſels of fleſh. They are eaſily tamed, and can ſubſiſt for a long time without food. They run ſo ſlowly, that a man may eaſily overtake them in an open field.—Their fleſh, though its taſte be very diſagreeable, is eaten by the ſavages.

MYRMELEO, the Ant-lion, in zoology; a genus of inſects of the neuroptera order. There are 15 ſpecies, of which the moſt remarkable is

Myrmelbo formicarius, the *ant-eater*. The perfect inſect is oblong, and of a brown colour. Its head is broad, with two large eyes on the ſides, and two antennæ beneath. The neck is rather long, cylindrical, and narrower than the head. See *Plate* 229. The thorax ſeems compoſed of two parts; one anterior, whence ariſe the upper wings; and the other poſterior, which gives birth to the under ones. The abdomen is of an oblong form, and conſiſts of 8 ſegments; the wings are diaphanous, adorned with a net-work of black fibres, charged with ſeveral blackiſh brown ſpots. This inſect, in its larva ſtate, is very fond of ants, which it hunts after, whence its name. The larvæ proceed from the eggs which the perfect inſect had depoſited in very fine dry ſand, in a place ſheltered from rain, either within a cleft of a wall or of the ground, or at the foot of a wall generally expoſed to the ſouth ſun. There they are hatched, and make their uſual abode. Their colour is grey, and their body, which is covered with ſmall protuberances, is of an oval form. The poſterior extremity terminates in a point, and is of uſe to ſink down into the ſand; for it only walks retrogreſſively, though furniſhed with ſix feet. Before the head is placed a dentated forceps, ſharp and hollow within, with which the creature catches and ſucks flies and other inſects, but eſpecially ants. This forceps ſerves as a mouth or roſtrum, as well as for an offenſive weapon. The animal's retrograde march not allowing it to run after the inſects on which it is to feed, it uſes a ſtratagem. It dives down into the ſand, and turning about in a circle, hollows out concentric furrows, gradually deeper and deeper, caſting at a diſtance with its horns the ſand it takes from that place. Thus it digs a hole in ſhape like a funnel, at the bottom of which it takes its ſtation, concealed in the ſand, nothing but the open extended forceps appearing above it. Miſchief overtakes every inſect that happens to fall into that hole. The myrmeleo, who is apprized of it by the grains of ſand rolling down to the bottom, overwhelms him with a ſhower of duſt, which it ejects with its horns, then drags the inſect to the bottom of the hole, where it ſeizes him with its forceps, and ſucks its vitals. It does not even ſpare other myrmeleons, who in their motions to and fro chance to fall into it. When the larva is come to its full growth, it digs no more holes; it moves backwards and forwards, tracing irregular furrows on the ſand, and at length ſpins itſelf a cod, ſhaped like a ball, the outer part of which is formed of the ſand in which it lived, and the inward is lined with fine white ſilk. Within this cod it turns to a chryſalis, which is curved into a ſemicircle, and wherein may be diſtinguiſhed all the parts of the perfect inſect that is to iſſue from it. It is more oblong than the larva, but much ſhorter than the perfect inſect. After a certain period, the chryſalis caſts off its ſlough, turns to a winged inſect, and breaks through the cod in order to take its flight. The perfect inſect is very ſcarce, but is ſometimes met with in ſandy places, and near rivulets.

(1.) * **MYRMIDON.** *n. ſ.* [μυρμιδων.] Any rude ruffian; ſo named from the ſoldiers of Achilles.—The maſs of the people will not endure to be governed by Clodius and Curio, at the head of their *myrmidons*, though theſe be ever ſo numerous, and compoſed of their own repreſentatives. *Swift.*

(2.) **Myrmidones**, } in antiquity; a people on
(2.) **Myrmidons**, } the S. borders of Theſſaly, who accompanied Achilles to the Trojan war. They received their name from Myrmidon, a ſon of Jupiter and Eurymeduſa, who married one of the daughters of Æolus, ſon of Hellen. His ſon Actor married Ægina the daughter of Aſopus. He gave his name to his ſubjects, who dwelt near the river Peneus in Theſſaly. According to ſome, the Myrmidons received their name from their having ariſen from ants or piſmires, upon a prayer put up for that purpoſe by king Æacus to Jupiter, after his kingdom had been diſpeopled by a ſevere peſtilence. According to Strabo, they received it from their induſtry, becauſe they imitated the diligence of the ants, and like them were indefatigable, and were continually employed in cultivating the earth.

MYRMILLONES, a ſpecies of gladiators at Rome, who fought againſt the Retiarii. Their arms were a ſword, head-piece, and ſhield. On the top of the head-piece they wore a fiſh emboſſed, called Μορμυρος, whence their name is ſuppoſed to be derived. The Retiarii, in their engagements, made uſe of a net, in which they endeavoured to entangle their adverſaries, and ſung during the fight, "*Non te peto, piſcem peto; quid me fugis, Galle?*" "I aim not at thee, but I aim at thy fiſh; why doſt thou ſhun me, O Gaul?" The Myrmillones were called Galli, becauſe they wore Gallic armour. They were alſo named *Secutores.* They were ſuppreſſed by Caligula. See GLADIATORES, RETIARII, &c.

(1.) * **MYROBALAN.** *n. ſ.* [*myrobalanus*, Lat.] A fruit.—The *myrobalans* are a dried fruit; they are fleſhy, generally with a ſtone and kernel, having the pulpy part more or leſs of an auſtere acrid taſte; they are the production of five different trees growing in the Eaſt Indies, where they are eaten preſerved. *Hill.*—The *myrobalan* hath parts of contrary natures; for it is ſweet, and yet aſtringent. *Bacon.*

(2.) **Myrobalans.** [from μυρον, ointment, and βαλανος, an acorn], are a kind of medicinal fruit brought from the Indies, of which there are 5 kinds. 1. The citrine of a yellowiſh red colour, hard, oblong, and the ſize of an olive. 2. The black, or Indian myrobalan, of the bigneſs of an acorn, wrinkled, and without a ſtone. 3. Chebulic myrobalans, which are of the ſize of a date, pointed at the end, and of a yellowiſh brown. 4. Emblic, which are round, rough, the ſize of a gall, and of a dark brown. 5. Balleric, which are hard, round, of the ſize of an ordinary prune, leſs angular than the reſt, and yellow. They are all ſlightly purgative and aſtringent.

(1.) **MYRON**, an excellent Grecian ſtatuary, who flouriſhed A. A. C. 442. The cow he repreſented in braſs as an admirable piece of workmanſhip, and was the occaſion of many fine epigrams in Greek.

(2.) **Myron**, an ancient hiſtorian of Priene, who wrote a hiſtory of Meſſenia. *Pauſ.* iv. 6.

* **MYROPOLIST.** *n. ſ.* [μυρον and πωλεω.] One who ſells unguents.

MYROSMA, in botany, a genus of the monogynia order, belonging to the monandria claſs of plants.

MYROXYLON, in botany, a genus of the monogynia order, belonging to the decandria claſs of plants. The calyx is campanulated; the ſuperior petal larger than the reſt; the germ is longer than the corolla; the legumen monoſpermous. There is but one ſpecies; viz.

Myroxylon peruiferum, a native of Peru and the warmer parts of America. This ſhrub yields the BALSAM OF PERU, which is extracted from it by coction in water. This balſam, as brought to us, is nearly of the conſiſtence of thin honey, of a reddiſh brown colour, inclining to black, an agreeable aromatic ſmell, and very hot biting taſte. Diſtilled with water, it yields a ſmall quantity of a fragrant eſſential oil of a reddiſh colour, and in a ſtrong fire, without addition, a yellowiſh red oil. Balſam of Peru is a very warm aromatic medicine, conſiderably hotter and more acrid than copaiva. Its principal effects are to warm the habit, to ſtrengthen the nervous ſyſtem, and attenuate viſcid humours. Hence its uſe in ſome kinds of aſthmas, gonorrhœas, dyſenteries, ſuppreſſions of the uterine diſcharges, and other diſorders proceeding from a debility of the ſolids, or a ſluggiſhneſs and inactivity of the juices. It is alſo employed, externally, for cleanſing and healing wounds and ulcers, and ſometimes againſt palſies and rheumatic pains.—There is another ſort of balſam of Peru of a white colour, and conſiderably more fragrant than the former. This is very rarely brought to us. It is ſaid to be the produce of the ſame plant which yields the common or black balſam, and to exſude from inciſions made in the trunk, while the former is obtained by boiling. There is alſo a 3d kind, commonly called the red or dry. This is ſuppoſed to obtain a different ſtate from the white, merely in conſequence of the treatment to which it is ſubjected after it is got from the tree. It is almoſt as fragrant as the balſam of Gilead, held in ſo high eſteem among the eaſtern nations. It is very rarely uſed in Britain, and ſeldom or never to be met with in our ſhops.

(1.) * **MYRRH.** *n. ſ.* [*myrrha*, Lat. *myrrhe*, Fr.] A gum.—*Myrrh* is a vegetable product of the gum reſin kind, ſent to us in looſe granules from the ſize of a pepper-corn to that of a walnut, of a reddiſh brown colour, with more or leſs of an admixture of yellow; its taſte is bitter and acrid, with a peculiar aromatic flavour, but very nauſeous; its ſmell is ſtrong, but not diſagreeable; it is brought from Ethiopia, but the tree which produces it is wholly unknown. Our *myrrh* is the very drug known by the ancients under the ſame name. *Hill.*—The *myrrha* ſweet bleeding in the bitter wound. *Spenſer.*—I dropt in a little honey of roſes, with a few drops of tincture of *myrrh*. *Wiſeman.*

(2.) **Myrrh** is a gummy, reſinous, concrete juice, obtained from an oriental tree. It comes to us in globes or drops, of various colours and magnitudes. The beſt ſort is ſomewhat tranſparent, friable, in ſome degree unctuous to the touch; its reddiſh yellow colour is often ſtreaked internally with whitiſh ſemicircular or irregular veins. There are ſometimes found among it hard ſhining pieces, of a pale yellowiſh colour, reſembling gum arabic, of no taſte or ſmell; ſometimes maſſes of bdellium, darker coloured, more opaque, internally ſofter than the myrrh, and differing from it both in ſmell and taſte; ſometimes an unctuous gummy reſin, of a moderately ſtrong ſomewhat ungrateful ſmell, and a bitteriſh very durable taſte, obviouſly different both from thoſe of bdellium and myrrh; ſometimes likewiſe, as Cartheuſer obſerves, hard compact dark-coloured tears, leſs unctuous than myrrh, of an offenſive ſmell, and a moſt ungrateful bitterneſs, ſo as, when kept for ſome time in the mouth, to provoke reaching, though ſo reſinous, that little of them is diſſolved by the ſaliva. Great care is therefore requiſite in the choice of this drug. We have no certain information concerning the tree from which this ſubſtance flows; we are only told that the myrrh tree is a native of Abexim in Ethiopia, and is named *bedoins* by the Arabs. Some ſay that the myrrh we have is not equal in quality to that of the ancients, and has not that exquiſite ſmell which all authors aſcribe to the latter. The moſt probable reaſon aſſigned for this is, that the modern myrrh comes from Arabia, which is, and always was, much inferior to that which the ancients obtained from Ethiopia or Abyſſinia. They aromatized their moſt delicious wines with it; and it was preſented as a very valuable perfume to our Lord while he lay in the manger. It was this gum alſo which was mingled with the wine given him to drink at his paſſion, to deaden his pains, and produce a ſtupor. (See Mark xv. 23.) The gall mentioned on the ſame occaſion by St Matthew is probably the ſame with myrrh; for any thing bitter was uſually diſtinguiſhed by the name of gall. The Hebrews were accuſtomed to give thoſe that were executed ſome ſtupefying draught. The difficulty which ariſes from the ſeeming difference betwixt the two evangeliſts, by ſome is ſolved by ſaying, that St Matthew, writing in Syriac, made uſe of the word *marra*, which ſignifies "myrrh, bitterneſs, or gall;" but the Greek tranſlator has taken it for gall, and St Mark for myrrh. Others will have it, that our Saviour's drink was mingled with myrrh, as a ſtupefying drug; but ſuppoſe that the ſoldiers, out of wanton cruelty, infuſed gall; which was the reaſon why, when he had taſted, he refuſed to drink. The ancients reckoned two kinds of myrrh; the one liquid, which they called STACTE or *ſtarte*; the other was ſolid, and went by the name of *troglodyte myrrh*. (See § 3, 4.) The medical effects of this aromatic bitter are to warm and ſtrengthen the viſcera; it frequently occaſions a mild diaphoreſis, and promotes the fluid ſecretions in general. Hence it proves ſerviceable in languid caſes, diſeaſes ariſing from ſimple inactivity, thoſe female diſorders which proceed from a cold, mucous, ſluggiſh indiſpoſition of the humours, ſuppreſſions of the uterine diſcharges, cachectic diſorders, and where the lungs and thorax are oppreſſed by viſcid phlegm. Myrrh is likewiſe ſuppoſed in a peculiar manner to reſiſt putrefaction in all parts of the body; and in this light ſtands recommended in malignant, putrid, and peſtilential fevers, and in the ſmall pox; in which laſt it is ſaid to accelerate the eruption. In the preſent practice myrrh is leſs employed than formerly. Some late writers, however, and particularly Dr Simmons, in his treatiſe on Conſumptions, have beſtowed very high encomiums on it, even in caſes of tuberculous phthiſis; and although it can by no means be repreſented as a remedy much to be depended on, yet there is reaſon to believe that it has been ſerviceable in ſome caſes. Rectified ſpirit extracts the fine aromatic flavour and bitterneſs of this drug, and does not elevate any thing of either in evaporation; the gummy ſubſtance left by this menſtruum has a diſagreeable taſte, with ſcarcely any of the peculiar flavour of the myrrh; this part diſſolves in water, except ſome impurities which remain. In diſtillation with water, a conſiderable quantity of a ponderous eſſential oil ariſes, reſembling in flavour the original drug. Myrrh is the baſis of an officinal tincture. It enters the pilulæ ex aloe et myrrha, the pilulæ e gummi, and pilulæ ſtomachicæ, and ſome other formulæ. But, for obtaining its full effects, it muſt be given in doſes of half a drachm or upwards; and it is thought to be advantageouſly united with a proportion of nitre, cream tartar, or ſome other refrigerant ſalt.

(3.) **Myrrh, stacte,** was procured
ſion, and was received in veſſels clo
Large pieces ſometimes preſent extern
contain a kind of oily juice, to which like
moderns give the name of *Stacte*. To prev
juice from hardening, or at moſt in a ver
degree, it is ſufficient to exclude it from th

tact of the air immediately after its iſſuing from the tree; and by theſe means its aromatic nature is much better preſerved.

(4.) MYRRH, TROGLODYTE, was obtained from a region of Ethiopia, called by the ancient Greeks *Troglodytria;* and reckoned ſuperior to every ſpecies of Arabian myrrh, although it was not all of the ſame quality. Many uncertain and erroneous conjectures and ſpeculations have been formed by Pliny, Theophraſtus, Dioſcorides, and other ancient writers, reſpecting this myrrh; as well as by Mr Bruce and other modern authors. But the moſt probable opinion ſeems to be, that it was the produce of Abyſſinia, and that its different qualities depended on the age and ſoundneſs of the trees, the ſeaſon of the year, and the temperature of the air, when the inciſions were made in it.

MYRRHA, in fabulous hiſtory, the daughter of CINYRAS, and mother of ADONIS. See theſe articles.

MYRRHINA VASA. See MURRHINA.

(1.) * **MYRRHINE.** *adj.* [*myrrhinus*, Lat.] Made of the myrrhine ſtone.—

Cryſtal and *myrrhine* cups imboſs'd with gems
And ſtuds of pearl. *Milton's Par. Regain'd.*

(2.) MYRRHINE, or MURRINE. See MURRHINA.

MYRSEN. See MYRZEN.

MYRSINE, in botany, AFRICAN BOX-TREE, a genus of the monogynia order, in the pentandria claſs of plants, and in the natural method ranking under the 18th order, *Bicornes.* The corolla is ſemiquinquefid and connivent; the germen filling the corolla; the berry quinquelocular and pentaſpermous.

MYRTEA, a ſurname of Venus.

(1.) **MYRTHER**, a valley of Wales, between Breconſhire and Glamorganſhire, bounded by two ranges of hills, famous for its coal and iron mines, and iron forges and manufactures; immenſe hammers, wheels, rolling mills, and water-works. In conſequence of theſe, it has within theſe 24 years, from a deſert, become a populous country, with good roads, extenſive markets for all kinds of produce, and cultivation extended to the tops of the higheſt hills. It is about 8 miles long and 4 broad.

(2.) MYRTHER, or MYRTHER-TEDVEL, } a town in the above valley, on the borders of Breconſhire, next to Glamorganſhire, 20 miles from Cardiff. In 1799 it hardly deſerved the name of a village. By the exertions of Mr Crawſhay of London, in erecting a canal which coſt 100,000l. with proper roads, forges, and all other neceſſary apparatus for iron manufactures, its population is now increaſed to 10,000; of whom 2500 men are employed in theſe works; beſides as many more by other three iron-maſters in the valley. Mr Crawſhay, who has realized a princely fortune from his iron works, though he began the world without a fixpence, has lately conſtructed an *overſhot* wheel here, the largeſt in the world, being above 50 feet in diameter, and made entirely of caſt iron. It coſt 4000l. and the water that turns it is brought from a ſtream in the hills five miles diſtant, on a platform of wood ſupported chiefly by ſtone pillars. In one part it has ſupporters of wood, where it croſſes a bridge, and, for 300 yards, is elevated 80 feet above the bed of the river.

(1.) * **MYRTIFORM.** *adj.* [*myrtus* and *forma*.] Having the ſhape of myrtle.

(2.) MYRTIFORM, in anatomy, is applied to ſeveral parts, from their reſembling myrtle-berries.

MYRTILUS. See MYRTOUM, and OENOMAUS.

MYRTIS, a Greek woman who diſtinguiſhed herſelf by her poetical talents. She flouriſhed about 500 years before the Chriſtian era, and inſtructed the celebrated Corinna in the rules of verſification. Pindar himſelf, as ſome report, was alſo one of her pupils.

(1.) * **MYRTLE.** *n. ſ.* [*myrtus*, Lat. *myrte*, Fr.] A fragrant tree ſacred to Venus.—The flower of the *myrtle* conſiſts of ſeveral leaves diſpoſed in a circular order, which expand in form of a roſe; upon the top of the foot-ſtalk is the ovary, which has a ſhort ſtar-like cup, divided at the top into five parts, and expanded; the ovary becomes an oblong umbilicated fruit, divided into three cells, which are full of kidney-ſhaped ſeeds. *Miller.*—

A cap of flowers, and a girdle
Embroider'd all with leaves of *myrtle.* *Shak.*

I was of late as petty to his ends,
As is the morn dew on the *myrtle* leaf
To his grand ſea. *Shak. Ant. and Cleopatra.*

—Democritus would have Concord like a fair virgin, holding in one hand a pomegranate, in the other a bundle of *myrtle;* for ſuch is the nature of theſe trees, that if they be planted, though a good ſpace one from the other, they will meet, and with twining one embrace the other. *Peacham.*

Nor can the muſe the gallant Sydney paſs
The plume of war! with early laurels crown'd,
The lover's *myrtle* and the poet's bay. *Thomſ.*

(2.) MYRTLE, in botany. See MYRTUS, N° II.

(3.) MYRTLE, CANDLEBERRY. See MYRICA, N° 1.

(4.) MYRTLE, DUTCH. See MYRICA, N° 4.

MYRTOS, in ancient geography, a ſmall iſland near Caryſtus, in Eubœa, which gave name to the

MYRTOUM MARE, a part of the Ægean ſea, lying between Eubœa, Peloponneſus, and Attica. It received this name from *Myrto*, a woman, or from the iſland MYRTOS, or from MYRTILUS, the ſon of Mercury, who was drowned there, &c. Strabo extends the MARE MYRTOUM between Crete, Argia, and Attica. Pauſanias, beginning it at Eubœa, joins it at Helena, a deſert iſland, with the Ægean ſea. Ptolemy carries it to the coaſt of Caria. Pliny ſays, that the Cyclades and Sporades are bounded on the W. by the Myrtoan coaſt of Attica.

(I.) **MYRTUS.** See MYRTOS.

(II.) MYRTUS, in botany, the MYRTLE, a genus of the monogynia order, belonging to the icoſandria claſs of plants, and in the natural method ranking under the 19th order, *Heſperideæ.* The calyx is quinquefid, ſuperior, there are five petals, the berry diſpermous or triſpermous. There are 14 ſpecies; the moſt remarkable are theſe:

1. MYRTUS COMMUNIS, the common MYRTLE tree, riſes with a ſhrubby, upright, firm ſtem, branching numerouſly all around into a cloſe full head, riſing 8 or 10 feet high; very cloſely garniſhed with oval, lanceolate, entire, moſtly oppoſite leaves, from half an inch to an inch and a half long, and one broad, on ſhort foot-ſtalks; and numerous, ſmall, pale flowers from the axillas,

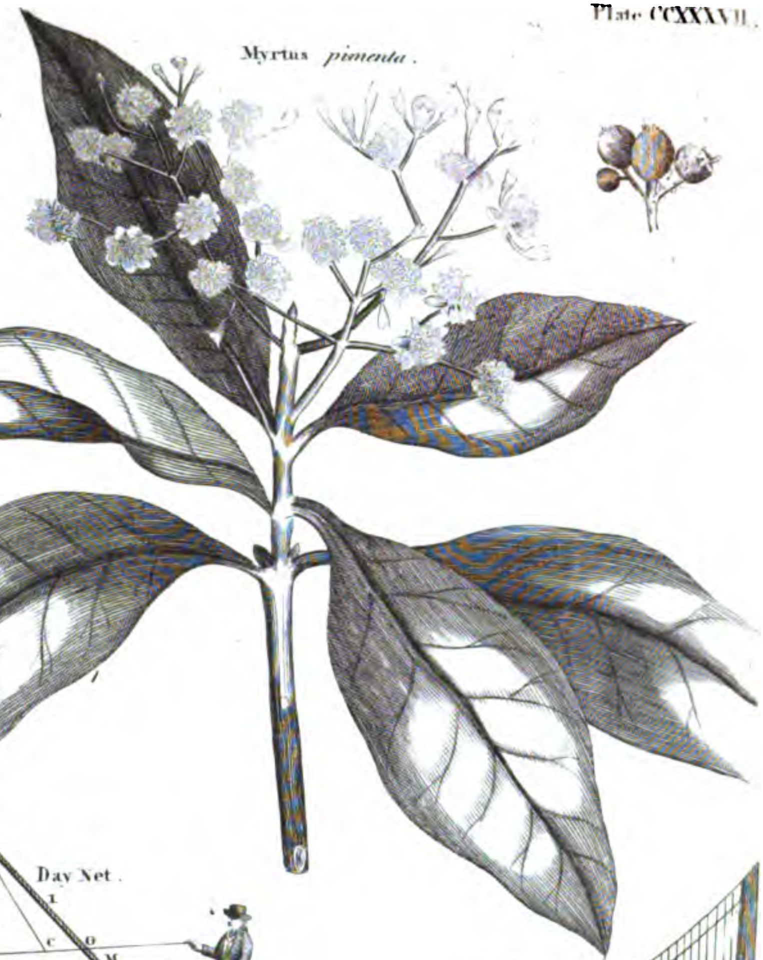
ſingly on each footſtalk, having diphyllous involucrums; each flower ſucceeded by a ſmall, oval, dark purple berry. The moſt material varieties are broad-leaved Roman myrtle, with oval, ſhining, green leaves, an inch and a half long, and one broad; and which is remarkably floriferous. Gold ſtriped broad leaved Roman myrtle. Broad leaved Dutch myrtle, with ſpear-ſhaped, ſharp pointed, dark green leaves, an inch long, and about three 4ths broad. Double-flowered Dutch myrtle. Broad-leaved Jews myrtle, having the leaves placed by threes at each joint; by which particular circumſtance this ſpecies is in univerſal eſtimation among the Jews in their religious ceremonies, particularly in decorating their tabernacles; and for which purpoſe many gardeners about London cultivate this variety with particular care, to ſell to theſe people, who are often obliged to purchaſe it at the rate of 6d. or 1s. for a ſmall branch; for the true ſort, having the leaves exactly by threes, is very ſcarce, and is a curioſity; but by care in its propagation, taking only the perfectly ternate-leaved ſhoots for cuttings, it may be greatly increaſed; and is worth the attention of the curious. Orange-leaved Spaniſh myrtle, with oval ſpear-ſhaped leaves, an inch and a half long or more, and one broad, in cluſters round the branches, and reſemble the ſhape and colour of orange tree leaves. Gold-ſtriped leaved orange myrtle. Common upright Italian myrtle, with its branches and leaves growing more erect, the leaves oval, lanceolate-ſhaped, acute-pointed, and near an inch long and half an inch broad. Silver-ſtriped upright Italian myrtle. White-berried upright Italian myrtle. Portugal acute-leaved myrtle, with ſpear-ſhaped, oval, acute-pointed leaves, about an inch long. Box-leaved myrtle, with weak branches, ſmall, oval, obtuſe, lucid green, cloſely placed leaves. Striped box-leaved myrtle. Roſemary-leaved myrtle, hath erect branches, ſmall, narrow, lanceolate, acute-pointed, ſhining, green, very fragrant leaves. Silver-ſtriped roſemary-leaved myrtle. Thyme-leaved myrtle, with very ſmall, cloſely-placed leaves. Nutmeg-myrtle, with erect branches and leaves; the leaves oval, acute-pointed, and finely ſcented like a nutmeg. Broad-leaved nutmeg myrtle. Silver-ſtriped leaved ditto. Criſtated or cock's-comb myrtle, frequently called *bird's neſt myrtle*, hath narrow, ſharp-pointed leaves, criſtated at intervals. Theſe are all beautiful evergreen ſhrubs of extraordinary fragrance; exotics originally of the ſouthern parts of Europe, and of Aſia and Africa, and conſequently in this country require ſhelter of a green-houſe in winter; all of which, though rather of the ſmall-leaved kind, have their foliage cloſely placed, and remain all the year, and are very floriferous in ſummer; and when there is a collection of the different ſorts, they afford an agreeable ſource of variety with each other. They therefore claim univerſal eſteem as principal green-houſe plants, eſpecially as they are all ſo eaſily raiſed from cuttings, and of ſuch eaſy culture, as to be attainable in every garden where there is any ſort of green-houſe, or garden frames furniſhed with glaſſes for protecting them in winter from froſt; but ſome of the broad-leaved ſorts are ſo hardy as to ſucceed in the full ground, againſt a ſouth wall and other warm expoſures, all the year, by only allowing them ſhelter of mats occaſionally in ſevere froſty weather; ſo that a few of theſe ſorts may alſo be exhibited in a warm ſituation in the ſhrubbery; obſerving, however, all the ſorts are principally to be conſidered as green-houſe plants, and a due portion of them muſt always remain in pots to move to that department in winter. All the varieties of the *myrtus communis* flower here in July and Auguſt; moſt of them are floriferous; the broad-leaved Roman kind in particular is often covered with flowers, which in ſome are ſucceeded here by berries ripening in winter. The flowers of moſt of the ſorts are ſmall, but numerous; and are all formed each of 5 oval petals and many ſtamina. As all theſe plants require protection in this country, they muſt be kept always in pots, for moving to the proper places of ſhelter, according to their nature; the *myrtis communis* and varieties to the green-houſe in winter; the other delicate kinds to the ſtove, to remain all the year; therefore let all the ſorts be potted in light rich earth; and as they advance in growth, ſhift them into larger pots, managing the myrtles as other green-houſe ſhrubs, and the ſtove kinds as other woody exotics of the ſtove. The leaves and flowers of *common* upright myrtle have an aſtringent quality, and are uſed for cleanſing the ſkin, fixing the teeth when looſened by the ſcurvy, and ſtrengthening the fibres. From the flowers and young tops is drawn a diſtilled water that is deterſive, aſtringent, coſmetic, and uſed in gargles. A decoction of the flowers and leaves is applied in fomentations. The berries have a binding deterſive quality; and the chemical oil obtained from them is excellent for the hair, and uſed in pomatums and moſt other external beautifiers of the face and ſkin. As an internal medicine, theſe berries have little or no merit.

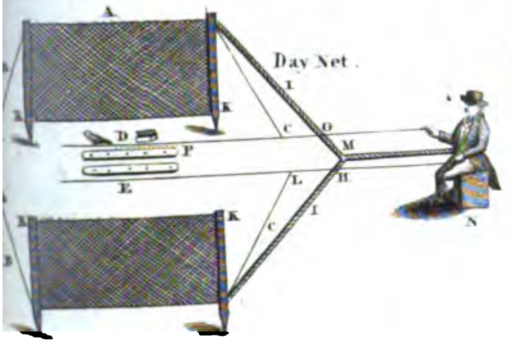
2. MYRTUS PIMENTA, PIMENTO, *Jamaica pepper*, or *all-ſpice* tree, grows above 30 feet in height and two in circumference; the branches near the top are much divided and thickly beſet with leaves, which by their continual verdure always give the tree a beautiful appearance; the bark is very ſmooth externally, and of a grey colour; the leaves vary in ſhape and in ſize, but are commonly about 4 inches long, veined, pointed, elliptical, and of a deep ſhining green colour; the flowers are produced in bunches or panicles, and ſtand upon ſubdividing or trichotomous ſtalks, which uſually terminate the branches; the calyx is cut into 4 roundiſh ſegments; the petals are alſo 4, white, ſmall, reflex, oval, and placed oppoſite to each other between the ſegments of the calyx; the filaments are numerous, longer than the petals, ſpreading, of a greeniſh white colour, and riſe from the calyx and upper part of the germen; the antheræ are roundiſh, and of a pale yellow colour; the ſtyle is ſmooth, ſimple, and erect; the ſtigma is obtuſe; the germen becomes a round ſucculent berry, containing two kidney-ſhaped flattiſh ſeeds. See *Plate* CCXXXVI. This tree is a native of New Spain and the Weſt India iſlands. In Jamaica it grows very plentifully; and in June, July, and Auguſt, puts forth its flowers, which, with every part of the tree, breathe an aromatic fragrance. The berries when ripe are of a dark

purple

Notonecta.

Myrtus *pimenta*.




Day Net.

Nablum or Nebel.

Nº.1. Napier's Rods. Nº.2.

	1	2	3	4	5	6	7	8	9	0
	/2	/4	/6	/8	1/0	1/2	1/4	1/6	1/8	/0
	/3	/6	/9	1/2	1/5	1/8	2/1	2/4	2/7	/0
	/4	/8	1/2	1/6	2/0	2/4	2/8	3/2	3/6	/0
	/5	1/0	1/5	2/0	2/5	3/0	3/5	4/0	4/5	/0
	/6	1/2	1/8	2/4	3/0	3/6	4/2	4/8	5/4	/0
7	/7	1/4	2/1	2/8	3/5	4/2	4/9	5/6	6/3	/0
8	/8	1/6	2/4	3/2	4/0	4/8	5/6	6/4	7/2	/0
9	/9	1/8	2/7	3/6	4/5	5/4	6/3	7/2	8/1	/0

1	4	7	6	8
2	/8	1/4	1/2	1/6
3	1/2	2/1	1/8	2/4
4	1/6	2/8	2/4	3/2
5	2/0	3/5	3/0	4/0
6	2/4	4/2	3/6	4/8
7	2/8	4/9	4/2	5/6
8	3/2	5/6	4/8	6/4
9	3/6	6/3	5/4	7/2

Spotted *or*
Surinam Nuthatch.

T. Clerk Sculpt.

purple colour, and full of a ſweet pulp, which the birds devour greedily, and muting the ſeeds, afterwards propagate theſe trees in all parts of the woods. It is thought that the ſeeds paſſing through them, in this manner, undergo ſome fermentation, which fits them better for vegetating than thoſe gathered immediately from the tree. The pimento is a moſt beautiful odoriferous evergreen, and exhibits a fine variety in the ſtove at all ſeaſons. It flowers with great beauty and luxuriance. It ſhould be potted in rich light earth, and remain always in the ſtove. It was firſt introduced and cultivated in this country by Mr Philip Miller in 1739. *Pimento* berries are chiefly imported into Britain from Jamaica; whence the name *Jamaica pepper*. It is alſo called *all-ſpice*, from its taſte and flavour being ſuppoſed to reſemble thoſe of many different ſpices mixed. It is one of the ſtaple articles of Jamaica; where the pimento walks are upon a large ſcale, ſome of them covering ſeveral acres of ground. When the berries arrive at their full growth, but before they begin to ripen, they are picked from the branches, and expoſed to the ſun for ſeveral days, till they are ſufficiently dried; this operation is to be conducted with great care, obſerving that on the firſt and 2d day's expoſure they require to be turned very often, and always to be preſerved from rain and evening dews. After this proceſs is completed; which is known by the colour and rattling of the ſeeds in the berries, they are put up in bags or hogſheads for the market. This ſpice, which was at firſt brought over for dietetic uſes, has been long employed in the ſhops as a ſuccedaneum to the more coſtly oriental aromatics; it is moderately warm, of an agreeable flavour, ſomewhat reſembling that of a mixture of cloves, cinnamon, and nutmegs. Diſtilled with water it yields an elegant eſſential oil, ſo ponderous as to ſink in the water, in taſte moderately pungent, in ſmell and flavour approaching to oil of cloves, or rather a mixture of cloves and nutmegs. To rectified ſpirit it imparts, by maceration or digeſtion, the whole of its virtue; in diſtillation it gives over very little to this menſtruum, nearly all its active matter remaining concentrated in the inſpiſſated extract. Pimento can ſcarcely be conſidered as a medicine; it is, however, an agreeable aromatic, and on this account is not unfrequently employed with different drugs, requiring ſuch a grateful adjunct. Both the pharmacopœias direct an aqueous and ſpirituous diſtillation to be made from theſe berries, and the Edinburgh college order alſo the *oleum eſſentiale piperis Jamaicenſis*. See PIMENTO.

MYRZEN, KIFFEKIL, or SEA FROTH, a ſingular mineral found in Natolia. See MINERALOGY, *Part* II. *Chap.* IV. *Claſs* I. *Ord.* I. *Gen.* XIX. *Sp.* 1.

MYSA, a river of Bohemia, which runs into the Mulda, a little above Prague.

* MYSELF. [illegible]. *ſ.* [*my* and *ſelf*.] 1. An emphatical word added to *I*; as, *I* myſelf *do it*, that is, not by proxy; not another.—

As his hoſt,
I ſhould againſt his murth'rer ſhut the door,
Nor bear the knife *myſelf*. *Shak. Macbeth.*

2. The reciprocal of *I*, in the oblique caſe.—They have miſſed another pain, againſt which I ſhould have been at a loſs to defend *myſelf*. *Swift*. 3. *I* is ſometimes omitted, to give force to the ſentence.—

Myſelf ſhall mount the roſtrum in his favour,
And try to gain his pardon. *Addiſon.*

(I.) MYSIA, a country of Aſia Minor, generally divided into Major and Minor.

1. MYSIA MAJOR had Æolia on the S. the Ægean Sea on the W. and Phrygia on the N. and E. Its chief cities were Cyzicum, Lampſacus, &c.

2. MYSIA MINOR was bounded on the N. and W. by the Propontis and Bithynia; and Phrygia on the N. and S. borders.

(II.) MYSIA, in Europe. See MOESIA.

1. MYSIANS, the inhabitants of Myſia. They were once very warlike, but they greatly degenerated, and the words *Myſorum ultimus* were emphatically uſed to ſignify a perſon of no merit. The ancients generally hired them to attend their funerals as mourners, becauſe they were naturally melancholy, and inclined to ſhed tears. They were once governed by monarchs. They are ſuppoſed to be deſcended from the

2. MYSIANS OF EUROPE, a nation who inhabited that part of Thrace which was ſituated between Mount Hæmus and the Danube. See MOESIA.

MYSON, a native of Sparta, one of the ſeven wiſe men of Greece. When Anacharſis conſulted the oracle of Apollo, to know which was the wiſeſt man in Greece, he received for anſwer, he who is now ploughing his fields. This was Myſon.

(1.) MYSORE, or the MYSOREAN DOMINIONS, a kingdom of Aſia, in the Eaſt Indies, conſiſting of the territories uſurped or ſubdued by Hyder Ali, and tranſmitted to his ſon Tippoo Saib, the late ſultan; from whom they were taken by the Britiſh in 1799. (See INDIA, § 29.) They conſiſt of 9 provinces; viz. 1. Myſore Proper. (See N° 2.) 2. *Bedenore*, or *Ikeri*, now *Hydernagur*, on the diſſolution of the Canarine empire, of which it was a part, became an independent ſtate under its Naicks of the race of Vencataputty, after which it fell under the divided female government of different rannies or queens, and ſo continued until conquered wholly by Hyder between 1763 and 1765. This country is divided into Balagaut and Payengaut; the latter ſtretching 140 miles along the ſea-coaſt from Deolah, or the river Cangrecora, being the N. frontier of Malabar, N. to Honowar or Onore, on the confines of Soonda, in different breadths of plain territory, from 40 to 50 miles, but which in all form an area of 3200 ſquare miles, ſtill retaining the ancient name of CANARA, and including the ports of Mangalore, Barcelore, Onore, &c. The former or elevated diviſion beyond the Supramanny Gauts, and immediately dependent on the capital Bedenore, Hanampour, &c. is of great indefinite extent inland, on both ſides of the Tumbhudra; twice the ſize, though not proportionable in value, of the maritime border. Both diviſions, however, allowing for a revenue eſtabliſhment of about 22,000 village peons, are aſſeſſed for 7 lacks of Ikeri pagodas, which, at 4 rupees each, make a clear income of 28 lacks of rupees. 3. SOONDA, in circumſtances of hiſtory or final conqueſt, might be placed under the preceding head; as alſo from a ſimilarity in its geographical deſcription, with only the difference of being on a much ſmaller ſcale. PAYENGAUT, from the diſtrict of Onore to the frontiers of Goa, along a ſea-coaſt of 60 miles, cannot comprehend above 1100 ſquare miles of territory, in which the port of Carwar may be conſidered the capital; while a much larger extent muſt be allowed for that portion of the diſtrict beyond the Gauts to the eaſtward. The whole revenue, however, of both diviſions, does not exceed two lacks of pagodas, or 8 lacks of rupees. 4. MALABAR, conquered by Hyder in 1765-6, excluſive of Koork, is altogether Payengaut; ſtretching along the ſhore from Declah S. to Cochin, about 200 miles, and comprehending, in an area of perhaps 6000 ſquare miles, the Samery's territory of Calicut, with the petty ſtates of Cartinad, Cotiotie, Cherica, or Cananore, on the N. and the tributary kingdom of Cochin on the S. the whole rated at a revenue of 5 lacks of pagodas, or about 19 lacks of rupees, after allowing for the maintenance of 18,000 village peons. 5. *Barab Mahl*, or *twelve pergunnahs*, was one of the earlieſt annexations of Hyder to the Myſorean dominion, though in the war of 1768 it was over-run, and for a while in poſſeſſion of the company's troops. The whole circar or diſtrict of Jugdeo, compoſed of heights and valleys on the confines of the Balagaut and Payengaut Carnatics, being one of the 7 dependencies of Ginjee ſubjected to the Mogul in 1698, was then ſubdivided into 17 pergunnahs, and aſſeſſed for a groſs revenue of 1,757,717 rupees. Of theſe ſubdiviſions, Amboor, Sautgur, &c. remain to the Payengaut; the reſt may comprehend, excluſive of the poligary of Shili Naick, about 1800 ſquare miles; but the net revenue of the ſame territory does not exceed five lacks of rupees at preſent. Theſe five provinces of the late Myſorean empire, with the diſtricts of Bangalore, Colar, &c. of the Carnatic-Balagaut Bejapoory, formed the whole of Hyder's dominion in the war 1768; and were calculated then to yield in all a nett income of 119 lacks and an half of rupees, allowing an eſtabliſhment of 115,000 village peons to enforce the collections, and maintain internal peace. 6. Petty ſtates of Hindoo rajahs, ſituated on the W. and N. of the Hendery and Tumbhuora rivers, to the confines of Goa, and the Marrhatta territories of Toorgul, Raibug, and Meritch, forming the jagheer of Purſeram Bow, beyond the S. branch of the Kiſtnah. Some of theſe rajahſhips had been entirely conquered by the Mogul; but the moſt conſiderable of them never were ſubdued by any Muſſulman power, until Hyder's conqueſt of them between 1774 and 1777, though different diſtricts from each may have been diſmembered for a while by the Mogul deputies of the Carnatic Balagaut Bejapoory, and therefore annexed in the accounts of the revenue of that circar. The frontier forts and dependencies of Goojunder-gur, Darwar, Badamy, &c. near the ſouthern branch of the Kiſtnah, towards the Marrhatta dominion, compoſed at one time the jagheer of Ragenaut Row, and have frequently changed their maſters. They fell ultimately to Tippoo at the peace of 1784, but he was forced to pay chout for them to the Peſhwa. On the whole, all theſe ſtates, of great indefinite extent and extremely poor, yield only a precarious revenue of 16 lacks of rupees to the Myſorean. 7. Carnatic Balagaut Bejapoory, conſiſting, under the Mogul, of one circar of the ſame name, and of which the capital was Serah. It comprehended 51 pergunnahs, of which Bangalore, Colar, &c. on the S. were ſeized by Hyder, immediately when he poſſeſſed himſelf of Myſore; but Anantpour, Penckonda, &c. on the N. with the reſt of the Marrhatta ſtate of Gooty, did not fall into his hands until 1776, when he overcame and made priſoner the proprietor Mora Row, who had rendered ſignal ſervice to the Engliſh in the preceding Myſorean war. The whole circar was rated at a jumma *kaumil*, or total groſs revenue on the king's books, of 43,916,396 rupees; but this valuation is thought to be exaggerated, as it ſeems too large a receipt from a country ſo poor and deſtitute of commerce, probably in all its dimenſions not exceeding 10,000 ſquare miles, and which was ſo liable to internal diſturbances or foreign invaſion, that notwithſtanding the number of ſtrong-holds to be found in it, every town required, and has its own particular fortification. However, the revenue actually forthcoming to Hyder in 1778, after defraying charges, and an eſtabliſhment of about 30,000 village peons, was only 3,205,206 rupees. 8. Carnatic *Balagaut Hydrabady*, comprehending the five circars of Sidnout, Kaſimam, Ganjecottah, Gooty, and Gorrumkonda, which were ſubdivided into 66 pergunnahs, rated by the Mogul's kaumils at 4,707,306 rupees; but from this amount is to be deducted the aggregate valuation of the pergunnahs or Chittoor, &c. now annexed to the Payengaut, together with the aſſeſſment of the diamond mines of Ganjecottah, which are no longer productive, making in all two lacks of rupees. The whole country thus deſcribed, bounded by the circars of Adoni and Nundial on the N. towards the Kiſtnah, the Guntour circar and Carnatic Payengaut on the E. with that of the Balagaut Bejapoury on the S. and W. may in ſquare dimenſions be about 10,000 ſquare miles. It formed the inheritance for four generations of the Patan nabobs of Cuddapah, deſcended from a collateral branch of the Sanore family, until Gooty and Gorrumkonda were taken by the Marrhattas in 1758, and then ultimately, with the remainder of Helim Khan's poſſeſſions, by Hyder in 1776-9. After deducting the amount of a few jagheers, and ſome charitable lands ſtill left to the Mahomedans of this diſtrict, with the expence of an eſtabliſhment of at leaſt 23,000 village peons, the nett revenue of the province may be eſtimated at 29 lacks of rupees. 9. *Adoni*, or circar of *Imtiazghur* on both ſides of the Hendery, S. of the Tumbhudra or Tungabuda river, as far as and incluſive of Bellary, together with a ſmall portion of the circar of Ghazipour or Nundial, diſmembered from the nabobſhip of Karnool, all ſituated in the ſoubah of Bejapour, comprehend the whole of the late Tippoo's conqueſts and annexation to the Myſorean empire, acquired ſince the death of Hyder, and ſubſequently to the treaty of Mangalore in 1784. In extent it cannot exceed 5000 ſquare miles, and the revenue is ſcarcely ſeven lacks of rupees, reckoning the petty zemindary of Bellary. But the fort of Adoni is of conſiderable importance, as being on an inſulated rock, thought the ſtrongeſt in Hindoſtan, without excepting Dowlatabad or Gualior. It was ever the favourite object of conqueſt to Hyder, the Marrhattas and Nizam; and preſerved only through the cautious policy of its proprietor, Baſſalut Jung. When it came into the weak inexperienced hands of his ſon Mahomet Jung, it fell by treachery under the dominion of Tippoo; together with all its territorial dependencies, except the circar of Riachore between the Kiſtnah and Tumbhudra. The extent of the late Tippoo's dominions, according to the lateſt maps, was computed at 80,000 ſquare geographic miles, or 92,666 Engliſh. Thus, conſidering it a triangle, of which the baſe runs nearly parallel to and not far S. of the Kiſtnah, in a longitudinal line of 340 Engliſh miles, about 16° Lat. N. or from the pagoda of Tripanti in the NE. angle, to Kittoor in the NW. towards the frontiers of Goa, of Bari, and the Marhattahs; then, one of its ſides, along the BALAGAUT, or mountainous ridge of the Malabar coaſt, (ſee BALAGATE, N° 2.), will be found to ſtretch in a horizontal diſtance 500 miles to the extreme point and paſs of Goodalore in that quarter; and its other ſide from thence N. touching the frontiers of the Carnatic Payengaut, 470 miles in a parallel direction to the Coromandel coaſt, to the further corner of the circar of Kahmam, near the firſt mentioned point at the pagoda of Tripanti. Beyond theſe three lines, the plains bordering on the ſhores of Canara and Malabar are the only excluſive territory of conſiderable extent that belonged to the late Tippoo. But in the area of the triangle deſcribed, are ſituated the independent ſtates of Sanore, Koork, &c. with part of Karnool and Raichore. As the whole face of the country is rugged, in many parts deſolate, badly watered, and generally riſing abruptly near half a mile of perpendicular height above the level of the ſea, the ſoil is not ſo fertile as the lower lands of Hindoſtan. In the PAYENGAUT on the Malabar coaſt, pepper, cardamums, ſandal wood, and grain, conſtitute the chief commercial produce within the whole circle of the Myſorean dominions. As to manufactures, except thoſe of Salem and Bellary, they are not conſiderable. For the conqueſt and diviſion of theſe extenſive dominions, ſee INDIA, § 29.

(2.) MYSORE PROPER, called alſo SERINGAPATAM from its capital, forming the independent ſtate of a Hindoo rajah for near 200 years from its diſmemberment, as a province of the Benjenagur empire, fell into the hands of Hyder Ali about 1763, by cutting off the Dalaway, or regent, uſurper of the government, and ſeizing the reins of adminiſtration himſelf; but without leaving even the ſhadow of any authority to a nominal rajah of his own creation, excepting in the formularies of juſtice or finance, and preſerving on one ſide of the pagoda coin the impreſſion of two ſwamies or divinities of the Hindoos, while the other was made to bear the initial letter of his proper name Hyder. The whole country, when reduced into the form of a province dependent on the Myſorean dominion of Tippoo, is bounded on the W. by the Balagaut hills of Koork, and thoſe called Anemally, bordering the whole coaſt of Malabar; on the E. it borders with the Carnatic Payengaut and its dependencies along the Coromandel coaſt; and, on the N. with the pergunnahs of Serah, Bangalore, and Colar, belonging to the Carnatic Balagaut-Bejapoury, in a longitudinal line little ſhort of 200 Engliſh miles. From this latter boundary, in a form nearly triangular, it ſtretches 240 miles toward the S. where it terminates in a point at the extremity of Dindigul, near the paſs of Goodalore, through the Anemally hills, on the confines of Travancore, and within 100 miles of Cape Comorin. It partakes of the two great diviſions of country, known in the Deccan by the terms Balagaut and Payengaut, or upper and lower region. The former, comprehending the diſtricts immediately dependent on the capital, and 43 ſubordinate forts, chiefly on eminences, is but indifferently watered by the ſeveral branches of the Caveri near its ſource; and muſt therefore, as well as in conſequence of an elevated ſituation, precluded from foreign commerce, with ſcarcely any internal induſtry, be comparatively poor, as it is productive only of joary and bajary, a ſmall ſpecies of Indian corn, with the different kinds of vetches common to India; from all which, however, a nett revenue, in money or kind, of 7 lacks of hoons or pagodas, being about 27 lacks of rupees, is computed to be forthcoming to the ſtate, after defraying the ordinary charges of collection, which here, as in the reſt of Hindoſtan, conſiſt chiefly of an eſtabliſhment of village peons or militia, reckoned 40,000 in number, for the whole province of Myſore, ſuppoſed to contain 15,400 ſquare geographic miles. The latter, or Payengaut diviſion, making ſcarcely a 3d part of this extenſive area, is better known to us under the name of COIMBETORE, including the diſtricts of Caroor, Darampour, and Namcul, on both ſides of the Caveri, with the valley of Dindigul on the S. and the great paſs of Palligautcherry towards Malabar on the W. It is extremely fertile and well cultivated; therefore, in proportion to its extent, more productive of revenue than the Balagaut territory, being eſtimated at 19 lacks of rupees. The rajahs of Koork, and other Pollygars among the Gauts, from Bidenore S. to Dindigul, occupy independently a conſiderable tract of country within the general deſcription of Tippoo's late dominions: but which being inacceſſible to regular troops by hills or impervious woods, the Myſorean power was never able to conquer, further than to facilitate the catching of a few elephants yearly, by means of the natives.

MYSOREAN, *adj.* of or belonging to MYSORE.

MYSSISE, a town of Yorkſhire, NW. of Rippon.

MYSTÆ. See ELEUSINIA, and MYSTERIES.

MYSTAGOGICA, in the ancient church, the higher part of inſtruction given to thoſe already initiated, and who had undergone the *catechefis.* See CATECHESIS.

(1.) * MYSTAGOGUE. *n. ſ.* μυϛαγωγος; *myſtagogus*, Latin.] One who interprets divine myſteries; alſo one who keeps church relics, and ſhews them to ſtrangers. *Bailey.*

(2.) MYSTAGOGUES, in the heathen myſteries. See MYSTERIES.

* MYSTERIARCH. *n. ſ.* [μυϛηριον and αρχη.] One preſiding over myſteries.

(1.) MYSTERY is derived from the Greek μυϛηριον; and in its modern acceptation imports ſomething above human intelligence, ſomething awfully obſcure and enigmatical; any thing artfully made difficult; the ſecret of any buſineſs or profeſſion. The word is often uſed by the founder of the Chriſtian religion, and more frequently by his apoſtles, eſpecially St Paul. In theſe caſes, it generally ſignifies thoſe doctrines of Chriſtianity which the Jews, prior to the advent of the Meſſiah, either did not or could not underſtand. The Trinity in Unity, and the Unity in Trinity; the incarnation of the Son of God; the union of two natures in one and the ſame perſon, &c. we generally call *myſteries*, becauſe they are infinitely above human comprehenſion. But our intention in this article is to lay before our readers an account of thoſe αποῤῥητω, or *ſecret rites*, of the pagan ſuperſtition, which were carefully concealed from the knowledge of the vulgar, and which are univerſally denominated *myſteries*.

(2.) The word Μυϛηριον is evidently deduced from Μυϛης; but the origin of this laſt term is not altogether ſo obvious. The etymologies of it exhibited by the learned are various; ſome of them abſurd. The myſteries were imported into Greece from the Eaſt. In thoſe regions, then, we ought to look for the etymology of the word. *Miſtar*, or *Miſtur*, [Heb. מסתר,] ſignifies any place or thing hidden or concealed. *Miſtur* is, therefore, evidently the root of the word Μυϛης, *myſter*.

(3.) The avarice and ambition of the pagan prieſts doubtleſs gave birth to the inſtitution of myſteries. The miniſters of that ſuperſtitition alleged that ſome articles of their ritual were too profound to be underſtood by the vulgar; others too ſacred to be communicated to men in a ſituation ſubordinate or contemptible. Things ſacred and venerable, they alleged, would contract a taint and pollution by an intercourſe with untutored ſouls. Theſe were the oſtenſible motives for making that odious diſtinction between the popular religion and that contained in the ſacred and myſterious ritual.

(4.) Of all the legiſlators of antiquity, the Cretan alone was prudent enough to ſee the abſurdity of this, and to adopt a liberal plan. Diodorus the Sicilian informs us, that the myſteries of Eleuſis, Samothracia, &c. which were elſewhere buried in profound darkneſs, were among the Cretans taught publicly, and communicated to all the people. MINOS, however, was a ſucceſsful legiſlator, and his pretended intercourſe with Jupiter Idæus extended his influence and eſtabliſhed his authority. He was therefore not under the neceſſity of calling in the myſteries to his aſſiſtance.

(5.) Myſteries were the offspring of Egyptian prieſtcraft. They were inſtituted with a view to aggrandiſe that order of men, to extend their influence, and to enlarge their revenues. To accompliſh theſe objects, they applied every engine to beſot the multitude with ſuperſtition and enthuſiaſm. They taught them, that themſelves were the diſtinguiſhed favourites of heaven; and that celeſtial doctrines had been revealed to them, too holy to be communicated to the profane vulgar, and too ſublime to be comprehended by them. After the myſteries were inſtituted, and had acquired a high reputation, legiſlators, magiſtrates, judges, and monarchs joined in the impoſture, with the ſame views. Prieſts and princes were actuated by the ſame ſpirit. The combination was equally advantageous to both.

(6.) The celebrated MOSHEIM is of opinion, that the myſteries were entirely commemorative; that they were inſtituted to preſerve the remembrance of heroes and great men, who had been deified in conſideration of their martial exploits, uſeful inventions, public virtues, and the benefits conferred on their contemporaries. In oppoſition to this ſingular opinion, it may be urged, that the method of preſerving the memory of great and illuſtrious men, generally adopted, was the eſtabliſhing feſtivals, celebrating games, offering ſacrifices, ſinging hymns, dances, &c. We can recollect no *ſecret* myſteries inſtituted for that purpoſe, at leaſt in their original intention. The *myſteries* were performed in *ſecret*; they were intended to be communicated only to a few; of courſe, had they been inſtituted to immortalize the memory of heroes and great men, the authors would have acted the moſt fooliſh and inconſiſtent part imaginable.—Inſtead of tranſmitting the fame of their heroes with eclat to poſterity, they would thus have conſigned it to eternal oblivion.

(7.) The myſteries were therefore the offspring of bigotry and prieſtcraft; they originated in Egypt, the native land of idolatry. In that country the prieſthood ruled predominant. The kings were ingrafted into their body before they could aſcend the throne. They were poſſeſſed (ſays Diodorus the Sicilian), of a 3d part of all the land of Egypt. All the orientals, but eſpecially the Egyptians, delighted in myſterious and allegorical doctrines. Every maxim of morality, every tenet of theology, every dogma of philoſophy, was wrapt up in a veil of allegory and myſticiſm. This propenſity conſpired with avarice and ambition to diſpoſe them to a dark and myſterious ſyſtem of religion. The Egyptians (ſays Plutarch) were a gloomy race of men; they delighted in darkneſs and ſolitude. Their ſacred rites were generally celebrated with melancholy airs, weeping, and lamentation. This gloomy bias muſt have ſtimulated them to a congenial mode of worſhip. Both the nature of the inſtitution and the genius of the people confirm this poſition; and hiſtorians, ancient and modern, declare the fact.

(8.) The rites of OSIRIS were performed with loud ſhrieks and lamentations when he was put into the coffin; and with the moſt extravagant mirth, when he was raiſed from the dead, or ſuppoſed to be found again. Their hymns were always compoſed in melancholy affecting ſtrains: and conſiſted of lamentations for the loſs of Oſiris, the myſtic flight of Bacchus, the wandering of Iſis, and the ſufferings of the gods. The Canaanites, who were kindred to the tribe of the Mizraim or Egyptians, imitated them in their ſacred rites. At Byblus, Berytus, Sidon, and Tyre, they uſed mournful dirges for the death of Adonis or Tamuz, who was the ſame with the Egyptian Oſiris, *i. e.* the ſun. The Egyptians then inſtituted a mode of worſhip congenial with their natural gloomy diſpoſition. The receſs of the ſun towards the ſouthern hemiſphere was the death of Oſiris; the wanderings of Iſis, in ſearch of her huſband and brother, allegorically imported the longings of the earth for the return of the fructifying influences of the ſolar heat. When that luminary returned towards the ſummer ſolſtice, and grain, trees, fruits, herbs, and flowers adorned the face of nature, another feſtival was celebrated of a different complexion. All Egypt was diſſolved in the moſt extravagant mirth and jollity. During the celebration of thoſe feſtivals, the prieſts formed allegorical repreſentations of the ſun and the earth. They perſonified both, and allegorized their motions, aſpects, relations, acceſſes, receſſes, &c. into real adventures, peregrinations, ſufferings, conteſts, battles, victories, defeats, &c. Theſe, in time, were held as real occurrences, and became eſſential articles of the popular creed. From this ſource were derived the conqueſts of Dionyſius or Bacchus, ſo beautifully exhibited by Nonnius in his Dionyſiacs; the wanderings of Io, wonderfully adorned by Æſchylus, &c.

(9.) Whether the Egyptians deified mortal men in the earlieſt ages has been much controverted. JABLONSKI endeavours to prove the negative. Plutarch tells us that Iſis, Oſiris, Horus, Anubis, and Typhon, were once mortal perſons, who were exalted into Demons after their death. Diodorus, in his hiſtory of Iſis and Oſiris, Pan, Hermes, &c. repreſents them as human perſonages; and ſays, that the Egyptians imagined, that after their deceaſe they tranſmigrated into ſtars. From theſe authorities, we may believe that the Egyptians deified thoſe who had diſtinguiſhed themſelves by prowеſs, wiſdom, arts, and inventions. This was a conſtant practice among the Greeks. The exploits of thoſe heroes had been diſguiſed by allegorical traditions. They had been magnified beyond all dimenſions, to aſtoniſh and intimidate the vulgar, and to gratify their propenſity towards the marvellous. All theſe ſecrets were developed in the myſteries. The catechumens were informed of every particular relating to the birth, the life, the exploits, the adventures, miſfortunes, and deceaſe of thoſe heroic perſonages. The magicians of Egypt were abundantly qualified for exhibiting *angels in machines*. The ſouls of virtuous men, who had not been eminent enough to merit the honour of deification, were ſhown in all the perfection of Elyſian felicity; and the ſouls of tyrants, and of the children of TYPHON (the devil of the Egyptians) were ſhown in Tartarus, ſuffering all the extremes of infernal puniſhment. From theſe exhibitions the myſtagogues took occaſion to read their pupils ſuitable lectures on the happy tendency of a virtuous conduct, and the miſery conſequent upon a contrary courſe. They ſet before them immortal renown, deification, and elyſium, on the one hand, and eternal infamy and miſery on the other. This may be deemed the chief advantage accruing from this inſtitution.

(10.) The catechumens were alſo taught many ſecrets of phyſiology. This Pharnutus every where affirms, eſpecially in his laſt book *De Nat. Deor.* towards the end. Plutarch too ſays, that moſt of the Egyptian fables were allegorical details of phyſical operations. Euſebius acquaints us, that the phyſiology, not only of the Greeks, but likewiſe that of the barbarians, was nothing but a ſcience of nature, a concealed and dark theology, involved in fable, whoſe hidden myſteries were ſo veiled over with allegories, that the ignorant million were as little capable of comprehending what was *ſaid*, as what was *ſuppreſſed* in ſilence. Dionyſius of Halicarnaſſus ſays, that the fables of the Greeks detail the operations of nature by allegories. Proclus makes the ſame obſervation. The Egyptians, ſays he, taught the latent operations of nature by fables. Theſe phyſiological ſecrets were expounded to the initiated; and that the Egyptian prieſts were deeply ſkilled in phyſiological ſcience, can ſcarce be queſtioned, when we are told that JANNES and JAMBRES rivalled MOSES with their enchantments. But the vulgar were excluded from all thoſe ſecrets which were reſerved for the nobility and ſacerdotal tribes.

(11.) Theſe allegorical traditions originated in Egypt. (See MYTHOLOGY.) It was the general bias of the oriental genius. The Egyptians, however, were the greateſt proficients in that ſcience. The original ſubjects of theſe inſtitutions were the articles ſpecified above: but in proceſs of time numerous new rites, ceremonies, uſages, and even doctrines, were ſuperinduced, which were utterly unknown to the original hierophants. (See HIEROPHANT, § 2.) Their ſubjects were at firſt ſimple and eaſy to be comprehended; in time they became complex, intricate, and unintelligible. To celebrate thoſe myſteries with the greater ſecrecy, their temples were ſo conſtructed as to favour the artifice of the prieſts. The fanes in which they performed their rites and ceremonies, were ſubterraneous apartments, conſtructed with ſuch wonderful dexterity, that every thing that appeared in them breathed an air of ſolemn ſecrecy. Their walls were covered with hieroglyphic paintings and ſculpture, and the altar was ſituated in the centre of the apartment. Modern travellers have diſcovered veſtiges of them, and NARDON, SHAW, POCOCKE, &c. deſcribe thoſe dark abodes. In thoſe ſubterraneous manſions, which the prieſts had planned with the moſt conſummate ſkill, the kings, princes, and great men of the ſtate, encountered the dangers and hardſhips contrived to prove their prudence, fortitude, patience, abſtinence, &c. Theſe were appointed to try their merit; and by theſe the hierophants decided whether they were duly qualified. Upon ſuch occaſions thoſe magical tricks were exhibited, for which the magicians of Egypt were ſo much celebrated. The ſtrange and aſtoniſhing ſights, the alternate ſucceſſions of light and darkneſs, the hideous ſpectres, the frightful howlings re-echoed by theſe infernal domes, the ſcenes of Tartarus and Elyſium, exhibited alternately and in quick ſucceſſion, muſt have made a deep and laſting impreſſion on the mind of the affrighted votary. See TROPHONIUS's CAVE.

(12.) From the ſcenes exhibited in the Egyptian myſteries, eſpecially thoſe of Iſis and Oſiris, the Greeks ſeem to have copied their ideas of the infernal regions, and the ſubterraneous manſions of departed ſouls. Many colonies of Egyptians ſettled in Greece. From theſe the ἀοιδοι, or early bards of Greece, learned them imperfectly. Of courſe, we find Homer's account of the infernal regions, and of the ſtate of departed ſouls, lame and incoherent. Succeeding bards obtained more diſtinct information. Euripides, Ariſtophanes, Plato, &c. paved the way for VIRGIL, who borrowed his ideas from all of them. Theſe, under his plaſtic hand, in the 6th Æneid, grew into a ſyſtem beautiful, regular, uniform, and conſiſtent. The materials were created to his hand; he had only to collect, poliſh, arrange, and connect them.

(13.) Egypt was then the native land of myſteries as well as idolatry. Every god and goddeſs reſpectively had their myſteries; but as thoſe of Iſis and Oſiris were the moſt celebrated, they became principal objects of purſuit as well as of imitation to the neighbouring nations. Theſe were carried into Perſia by ZOROASTRES, or Zerduſht, and conſecrated to Mithras. Orpheus imported them into Thrace; Cadmus brought them into Bœotia, where they were ſacred to Bacchus. Inachus eſtabliſhed them at Argos in honour of Juno; Cyniras in Cyprus, where they were dedicated to Venus. In Phrygia they were ſacred to Cybele, the mother of the gods. This progreſs of the myſteries is rendered the more probable, when we conſider, that a great part of Greece was planted with colonies from Egypt, Phœnicia, Paleſtine, &c. Orpheus, if not an Egyptian, was at leaſt of oriental extraction. Inachus, Cadmus, and Melampus, are univerſally allowed to have been Egyptians. Erechtheus, in whoſe reign the Eleuſinian myſteries were eſtabliſhed, was an Egyptian by birth, or ſprung from Egyptian anceſtors. The Egyptians, then, in thoſe early ages, did not view the Greeks in the light of aliens, but as a people nearly related, either to themſelves, or their brethren the Phœnicians. Although every particular deity had his own peculiar myſterious ſacred rites, yet Mithras, Oſiris, and Ceres, were deemed the moſt auguſt, and were univerſally worſhipped.

(14.) MITHRAS, or, according to the Perſian, *Mihr*, was one of the great gods of the Aſiatics. His worſhip was for many ages confined to Perſia. Afterwards, it was propagated ſo far and wide, that ſome have imagined they have diſcovered veſtiges of it even in Gaul. *Mihr*, according to Dr Hyde, ſignifies *love*, and likewiſe the *ſun*. It is by others reckoned a cognate of the Hebrew word *Muthir, excellence*. That there was an analogy between the Hebrew and old Perſian, is generally admitted. Mithras was the ſun among the Perſians; and in honour of that luminary this inſtitution was eſtabliſhed. Mithras, according to Plutarch, was the middle god between OROMAZ and Ahriman, the two ſupreme divinities of Perſia. (See ARIMANIUS.) But the fact is, the ſolar planet was the viſible emblem of Oromaz, the good genius of the Perſian tribes, and the ſame with the Oſiris of the Egyptians. The grand feſtival of Mithras was celebrated ſix days, in the middle of the month Mihr, which began Sept. 30, and ended Oct. 30.

(15.) ZOROASTER worſhipped MITHRAS, or the Sun, in a certain natural cave, which he formed into a temple, and filled up in a manner exactly mathematical. There Mithras was repreſented as preſiding over the lower world with all the pomp of royal magnificence. In it were the ſymbols of Mithras and of the world, philoſophically and mathematically exhibited. Mithras was ſometimes repreſented as mounted on a bull, which he kills with a ſword. On ſome baſs reliefs ſtill exiſting, he appears as a young man with his tiara turned upward, clothed with a ſhort tunic and breeches, after the Perſian faſhion, or with a ſmall cloak. Over the cave were ſeen the chariots of the ſun and moon, and divers conſtellations. In one of thoſe caves the ceremonies of initiation were performed; but before the candidate could be admitted, he was forced to undergo a courſe of probationary exerciſes, ſo numerous and ſo rigorous, that few had courage and fortitude to go through them. He was obliged to live a life of virtue and abſtinence for 7 years previous to his initiation. Some months before it, he was obliged to ſubmit to an auſtere faſt of 50 days. He was to retire ſeveral days to a deep and dark dungeon, where he was ſucceſſively expoſed to all the extremes of heat and cold. Meantime he frequently underwent the baſtinado, which the prieſts applied without mercy. Some ſay this fuſtigation continued two whole days, and was repeated no leſs than 15 times. In the courſe of theſe probationary exerciſes, the candidate was generally reduced to a ſkeleton; and ſome actually periſhed in the attempt.

(16.) Upon the eve of the initiation, the aſpirant braced on his armour, to encounter giants and ſavage monſters. In thoſe ſpacious ſubterraneous manſions a mock hunting was exhibited. The prieſts and all the ſubordinate officers, transformed into lions, tygers, leopards, bears, wolves, &c. aſſailed him with loud howlings, roaring, and yelling, and every inſtance of ferine fury. In thoſe mock combats, the hero was often in danger of being really worried, and always came off with bruiſes and wounds. Lampridius informs us, that when the emperor Commodus was initiated, he killed one of the prieſts who attacked him in the form of a wild beaſt. The Perſians worſhipped Mithras by a perpetual fire: hence the votary was obliged to undergo a fiery trial, by paſſing 7 times through the ſacred fire, and each time plunging himſelf in cold water. Some have made theſe probationary penances amount to 80; others only to 8. The candidate, having undergone all theſe torturing trials with fortitude, was declared a proper ſubject for initiation. But before his admiſſion, he was to bind himſelf by the moſt horrible oaths and imprecations, never to divulge an article of all that ſhould be communicated to him.

(17.) What *απορρητα* or *ineffable ſecrets* were imparted to the initiated, it is impoſſible to diſcover. But we may reſt aſſured, that the traditions concerning the origin of the univerſe; the nature, attributes, perfections, and operations, of Oromazdes; the baleful influences of Ahriman; and the benign effects of the government of Mithras, were unfolded and inculcated. The phenomena of nature, diſcovered by the magi, were alſo exhibited; and the application of their effects, to aſtoniſh and delude the vulgar, were taught. Virtue was warmly recommended, and vice repreſented in the moſt frightful colours. Thoſe initiations are mentioned by Lampridius, Juſtin, and Tertullian. The laſt of theſe ſpeaks of a kind of baptiſm, which waſhed from the ſouls of the initiated all the ſtains they had previouſly contracted; and mentions a particular mark which was imprinted upon them. There was preſented to the initiated a crown ſuſpended on the point of a ſword; but they were taught to ſay, *Mithras is my crown;* to intimate, that they looked upon the ſervice of that deity as their chief honour.

(18.) After the TELETÆ, or rites which confer perfection, were finiſhed, the pupil was brought out of the cave or temple, and with great ſolemnity proclaimed a *Lion of Mithras;* a title which imported ſtrength and intrepid courage in the ſervice of the deity. They were now conſecrated to the god, and were ſuppoſed to be under his immediate protection; which animated them to the moſt daring enterpriſes. The worſhip of Mithras was introduced into the Roman empire, towards the end of the republic, where it made very rapid progreſs. When Chriſtianity began to make a figure in the empire, the champions for paganiſm propoſed the worſhip of this *power of benevolence*, to counterbalance that worſhip which the Chriſtians paid to Jeſus Chriſt, the true *Sun* of righteouſneſs. But this mode was ſoon aboliſhed, together with the other rites of paganiſm. The Perſian grandees affected names compounded with Mithras: hence *Mithridates*, *Mithrobarzanes*, &c. Hence, too, the precious ſtone called *Mithridat*, which by the reflection of the ſun ſparkled with a variety of colours. (*Solinus*, cap. x.) There is likewiſe a certain pearl of many different colours, which they call *Mithras*. It is found among the mountains near the Red Sea; and when expoſed to the ſun, it ſparkles with a variety of dyes. We likewiſe find a king of Egypt of that name who reigned at HELIOPOLIS; who, in conſequence of a dream, erected an immenſe obeliſk to the Sun, near that city. The votaries of Mithras pretended that he was ſprung from a rock, and that therefore the place where the myſterious ceremonies were communicated to the initiated was always a cave. Many reaſons have been aſſigned for the origin of this rock-born deity. The learned Dr DAVID DOIG of Stirling (to whoſe erudition we are chiefly indebted for this article), ſuppoſes, that as "a rock is the ſymbol of ſtrength and ſtability, the dominion of Mithras, in the opinion of his votaries, was firm as a rock, and ſtable as the everlaſting hills." Mr BRYANT, in his *Analyſis of Mythology*, diſcuſſes this point with deep reſearch.

(19.) Mr ANQUETIL briefly delineates the functions of this deity. "The peculiar functions of Mithras are to fight continually againſt Ahriman and the impure army of evil genii, whoſe conſtant employment is to ſcatter terror and deſolation over the univerſe; to protect the frame of nature from the demons and their productions. For this purpoſe he is furniſhed with a thouſand ears and a thouſand eyes, and traverſes the ſpace between heaven and earth, his hands armed with a club or mace. Mithras gives to the earth light; to men corn, paſtures, and children;—maintains harmony upon earth, watches over the law," &c.

(20.) The original DIONYSIUS or BACCHUS was the OSIRIS of the Egyptians, or the SUN. The Greek name of that deity is plainly oriental, being compounded of *Di*, *bright;* and *naſia* or *naſa*, in the Æolic dialect, *nuſa*, *a prince*. Herodotus tells us, that *Oſiris* is *Dionyſius* in the Greek language: Martianus Capellus expreſſes the ſame idea. The name *Oſiris* has much embarraſſed critics and etymologiſts. The learned Jablonſki has taken much pains to inveſtigate the etymology of it. If it is granted, that the Hebrew and Egyptian tongues are cognate dialects, it is the *Choſher* or *Oſhir* of the former, which imports, *to make rich*. The term *Oſiris* was applied both to the ſun and to the Nile; both which by their influence contributed reſpectively to *enrich* and fertilize the land of Egypt. *Joh*, or *Io*, was the name of the moon.

(21.) In the earlieſt periods of the Egyptian monarchy, there appeared two illuſtrious perſonages Oſiris and Iſis, the children of Cronus; and they were married, according to the cuſtom of the Egyptians. As the brother and huſband had aſſumed the name of the *Sun*; ſo the ſiſter and conſort took that of *Iſis*, that is, *the woman*, a name which the Egyptians applied both to the moon and to the earth. Oſiris having left Iſis regent, with Hermes as her prime miniſter, and Hercules as general of her armies, quitted Egypt with a numerous body of troops, attended by companies of fauns, ſatyrs (men and women in theſe habits), ſinging women, muſicians, &c. and traverſed all Aſia to the eaſtern ocean. He then returned homeward through the upper Aſia, Thrace, Pontus, Aſia Minor, Syria, and Paleſtine. Wherever he marched, he conferred numberleſs benefits on the ſavage inhabitants. He taught them huſbandry, gardening, botany, &c. inſtructed them in the culture of the vine; and where vines could not be produced, he taught them to produce fermented liquor from barley. He built many cities, planted numerous colonies, inſtituted wholeſome laws, eſtabliſhed religious rites, and left prieſts to teach the obſervance of them. In ſhort, he left every where laſting monuments of his generoſity and beneficence. Where he found the people docile and ſubmiſſive, he treated them with kindneſs and humanity: if any ſhowed themſelves obſtinate, he compelled them to ſubmit to his inſtitutions by force of arms.

(22.) Many have conſidered this expedition as fabulous, but it is ſaid to be confirmed by numberleſs monuments of Egyptian architecture and ſculpture lately diſcovered. At the end of three years, he returned to Egypt, where his brother TYPHON had been forming a conſpiracy againſt his life. He invited Oſiris, with ſome other perſons, to an entertainment. When the repaſt was finiſhed, he produced a beautiful coffer, highly finiſhed, and adorned with ſtuds of gold; promiſing to beſtow it on the perſon whom it ſhould fit beſt. Oſiris made the experiment. The conſpirators nailed down the cover upon him, and threw the coffer into the river. This coffer, now the coffin of Oſiris, was wafted by the winds and waves to the neighbourhood of Byblus, a city of Phœnicia, where it was caſt on ſhore, at the foot of a tamarind tree. Iſis, in the mean time, diſconſolate, attended by Anubis, ranſacked every quarter in ſearch of Oſiris. At length, being informed that his body was lodged near Byblus, ſhe repaired to that city, was introduced to the queen, and after various adventures, recovered the corpſe of her huſband, which ſhe carried back to Egypt: but Typhon found her on the banks of the Nile; and having robbed her of her charge, cut the body into 14 parts, and ſcattered them up and down. Once more, Iſis ſet out in queſt of thoſe parts, all of which, one excepted, ſhe found, and interred each in the place where ſhe found them; and hence the many tombs of Oſiris in that country. Theſe tombs were denominated *tapoſins* by the natives. Many other fabulous adventures were aſcribed to theſe two perſonages. See *Diod. Sic. Bryant's Analyſis of Ancient Mythology*, and *M. Cour de Gebelin*.

(23.) To commemorate thoſe adventures, the myſteries of Iſis and Oſiris were inſtituted; and from them thoſe of Bacchus and Ceres, among the Greeks, were derived. Of the Egyptian ſolemnity, we have an exact epitome in one of the fathers of the church. "They deplore annually, with deep lamentations and ſhaved heads, the cataſtrophe of Oſiris, over a buried ſtatue of that monarch. They beat their breaſts, mangle their arms, tear open the ſcars of their former wounds; that by annual lamentations the cataſtrophe of his miſerable death may be revived in their minds. After a certain number of days, they pretend that they have found the remains of his mangled body; their ſorrows are lulled aſleep, and they break out into immoderate joy." Oſiris and Iſis were probably ſovereigns of Egypt at a very early period; they had conferred many benefits on their ſubjects. who, from gratitude, paid them divine honours after their deceaſe; in time they were confounded with the ſun and the moon; and their adventures magnified beyond all credibility, interlarded with fables, and allegoriſed in the myſteries.

(24.) The ſame mode of worſhip was eſtabliſhed at Byblus, and in after ages at Tyre. The Mizraim and Chanaanim were nearly connected by blood, and their religious ceremonies were derived from the ſame ſource. Among the Phœnicians this deity obtained the names of ADONIS and BACCHUS. The former is rather an epithet, ſignifying *my lord*, than a name: the latter, from *bahah*, to weep, is evidently an alluſion to the weeping with which the rites were performed. We now proceed to the myſteries of Oſiris, as they were celebrated among the Greeks and Thracians, under the name of the *Orgia of Dionyſius* or *Bacchus*.

(25.) ORPHEUS, the celebrated Thracian philoſopher had travelled into Egypt in queſt of knowledge; and from that country, he imported the bacchanalian rites. Some affirm that thoſe rites were imported from Egypt or Phœnicia by Cadmus himſelf, a native of the former country, who ſpent ſome time in the latter, before he emigrated to Bœotia. SEMELE, the daughter of Cadmus, and the mother of the Grecian Bacchus, was ſtruck with lightning at the very inſtant of his birth. The child was denominated *Bacchus* from the ſorrow this accident occaſioned in the family. Cadmus ſent his infant grandſon to his relations in Phœnicia or Egypt. There he was inſtructed in the myſteries of Iſis and Oſiris, and in all the magical tricks of the Egyptian prieſts. Thus accompliſhed, he returned to Thebes with the traditional retinue of the original deity, and claimed divine honours. This claim was not admitted without oppoſition; PENTHEUS, another grandſon of Cadmus, was torn to pieces by the frantic Bacchanalians upon mount Citheron, becauſe he attempted to interrupt them in celebrating the orgia.

(26.) The Greeks attributed all the actions of the Egyptian hero to their new Bacchus. To him they aſcribed all the adventures and exploits of the oriental archetypo. Conſequently in the orgia every thing was collected that had been imported relating to Oſiris; and to that farrago was joined all that the Grecian rhapſodiſts thought fit to invent. Hence the religious ceremonies of the Greeks became a medley of inconſiſtencies. The adventures of the Theban pretender were grafted upon thoſe of the Egyptian archetype, and out of this combination was formed a tiſſue of adventures diſgraceful to human nature, abſurd, and inconſiſtent. Indeed the Theban Bacchus was a monſter of debauchery; whereas the Egyptian is repreſented as a perſon of an oppoſite character. Of courſe the myſteries of the former were attended with the moſt ſhocking abominations. Theſe myſteries were firſt celebrated at Thebes the capital of Bœotia, under the auſpices of the family of Cadmus. From this country they made their way into Greece, and all the neighbouring parts of Europe.

(27.) When the day appointed for the celebration of the orgia approached, the prieſts iſſued a proclamation, enjoining all the initiated to equip themſelves according to the ritual. The votaries were to dreſs themſelves in coats of deer ſkins, to looſe the fillets of their hair, to cover their legs with the ſame ſtuff with their coats, and to arm themſelves with thyrſi. (See THYRSUS, N° 1.) The Bacchanalians, eſpecially the Thracians, uſed often to quarrel and commit murder in their drunken revels. A law was therefore enacted, that the votaries, inſtead of real ſpears, ſhould arm themſelves with wooden weapons. The ſtatue of the deity, which was covered with vine or ivy leaves, was elevated on the ſhoulders of the prieſts. The cavalcade then proceeded in the following order; —Firſt, hymns were chanted in honour of Bacchus. Horace, in his dithyrambic odes, has pointed out the ſubjects of thoſe Bacchanalian ſongs. In the hymns attributed to Orpheus, we find ſeveral addreſſed to this deity, under different titles. The firſt diviſion of the votaries then preceded, carrying a pitcher of wine, with a bunch of the vine. Then followed the he-goat; an animal odious to Bacchus, becauſe he ravages the vines. The chanting hymns, the ſacrificing the he-goat, and the revels, games, and diverſions, gave birth to the dramatic poetry of the Greeks; as the perſons habited as fauns, ſylvans, and *ſatyrs*, furniſhed the name of another ſpecies of poetry. Then appeared the myſterious coffer, containing the ſecret ſymbols of the deity. Theſe were the PHALLUS, ſome grains of ſeſama, heads of poppies, pomegranates, dry ſtems, cakes baked of the meal of different kinds of corn, ſalt, carded wool, rolls of honey, and cheeſe; a child, a ſerpent, and a fan. Clemens Alexandrinus mentions alſo the dye, the ball, the top, the wheel, the apples, the looking glaſs, and the fleece. The articles firſt mentioned were of Egyptian original; the laſt were ſuperinduced by the Greeks, in alluſion to his being murdered and torn in pieces when he was a child by the machinations of Juno, who prevailed with the Titans to commit the horrid deed. Theſe laſt were memorials of his boyiſh play-things; for, ſays Maternus, "the Cretans, in celebrating the rites of the child Bacchus, acted every thing that the dying boy either ſaid, or did, or ſuffered. They likewiſe (ſays he) tore a live bull in pieces with their teeth to commemorate the diſmembering of the boy." But Porphyry ſays, that in the iſland of Chios they ſacrificed a man to Bacchus, and mangled and tore him limb from limb.

(28.) On the day ſet apart for this ſolemnity, men and women, crowned with ivy, their hair diſhevelled, and their bodies almoſt naked, ran about the ſtreets, roaring aloud *Evohe Bacche!* intoxicated with wine and enthuſiaſm, dreſſed like Satyrs, Fauns, and Silenuſes, in ſcandalous poſtures and attitudes, without any regard to modeſty or decency. Next followed a company mounted upon aſſes, attended by Fauns, Bacchanals, Thyades, Mimallonides, Naiads, Tityri, &c. who made the adjacent places echo to their frantic howlings. After this tumultuous herd were carried the ſtatues of victory, and altars in form of vine-ſets crowned with ivy, ſmoking with incenſe. Then appeared ſeveral chariots loaded with thyrſi, arms, garlands, caſks, pitchers, vaſes, tripods, &c. The chariots were followed by young virgins of quality, who carried the baſkets and little boxes, which contained the myſterious articles. Theſe, from their office, were called *ciſtophoræ*. The PHALLOPHORI followed with a chorus of *Itophallophori* habited like Fauns, counterfeiting drunk perſons, and ſinging in honour of Bacchus. The proceſſion was cloſed by a troop of Bacchanalians crowned with ivy, interwoven with branches of yew, and with ſerpents. Sometimes at thoſe ſcandalous feſtivals, naked women whipped themſelves, and tore their ſkins in a barbarous manner. The proceſſion terminated on mount Citheron, when it ſet out from Thebes; and in other places, in ſome diſtant unfrequented deſert, where the votaries practiſed every ſpecies of debauchery with ſecrecy and impunity. Orpheus ſaw the degeneracy of thoſe ceremonies; and in endeavouring to reform them loſt his life. Pentheus ſuffered in the like attempt, being torn in pieces by the Bacchanalians, among whom were his own mother and aunts. For farther information on this ſubject, we refer the reader to Diod. Sic. Apollod. Bibl. Euripid. Bacchæ. Ariſtophane Ranæ, Nonn. Dionyſ. Ban. Mythol. Voſſ. de orig. Idol. Fourmont, Reflexions ſur l'origine des anciens peuples, Bryant's Analyſ. and Cour de Gebelin, Calendriers.

(29.) We proceed to the Eleuſinian myſteries, which, among the ancient Greeks and Romans, were treated with a ſuperior degree of awe and veneration. Theſe were inſtituted in honour of Ceres, the goddeſs of corn; who, according to the moſt authentic accounts, was the Iſis of the Egyptians. The myſteries of Oſiris and Iſis were originally inſtituted in honour of the ſun and moon, and afterwards conſecrated to an Egyptian prince and princeſs; who had been deified by that people. We know of no more exact and brilliant deſcription of the ceremonies of that goddeſs, in the moſt poliſhed ages of the Egyptian ſuperſtition, than what we meet with in the witty and florid Apuleius, (*lib.* xi.) to which we refer our curious readers. By what means, and upon what occaſion, thoſe myſteries were introduced into Attica, and eſtabliſhed at Eleuſis, Diodorus Siculus illuſtrates: "Erectheus, (ſays he) a prince of Egyptian extraction, once reigned at Athens. A ſcorching drought, during his reign, prevailed over all the world, except Egypt; which, from the humidity of its ſoil, was not affected by that calamity. The fruits of the earth were burnt up; and multitudes of people periſhed: Erectheus imported a vaſt quantity of grain from Egypt to Athens. The people, relieved by his munificence, unanimouſly elected him king, and he taught them the myſteries of Ceres at Eleuſis. In thoſe times the goddeſs is ſaid to have appeared at Athens, 3 times; becauſe corn was thrice imported into Attica." Here then we have the whole myſtery of the arrival of Ceres in Attica, and the inſtitution of her myſteries at Eleuſis unveiled. The whole is evidently an oriental allegory.

(30.) TRIPTOLEMUS, another Egyptian, was appointed by Erectheus to export this ſuperfluous ſtore. That hero, according to Pherecydes, was the ſon of Oceanus and Tellus, or the ſea and the earth; becauſe his parents were not known, and becauſe he came to Eleuſis by ſea. The ſhip in which he ſailed was decorated with the figure of a winged dragon; therefore, he was ſaid to be wafted through the air in a chariot drawn by dragons. Wherever Triptolemus diſpoſed of his corn, thither were extended the wanderings of Ceres. Along with the grain imported from Egypt, Erectheus, or Triptolemus, or both, tranſported into Attica a number of prieſts and prieſteſſes; who ſpread their rites over almoſt all Aſia and great part of Europe. The Greek and Roman idolatry originated from them; and numberleſs monuments of their impious worſhip are ſtill extant in Perſia, India, Japan, Tartary, &c. The worſhip of Iſis was introduced into every country where Triptolemus ſold his grain. Hence the wanderings of Ceres in ſearch of her daughter PROSERPINE. The diſappearing of the fruits of the earth, of which Proſerpine is the emblem, is the allegorical rape of that goddeſs, by PLUTO, ſovereign of the infernal regions. The wanderings of Iſis in ſearch of Oſiris furniſhed the model for the peregrinations of Ceres.

(31.) CERES, the Roman name of the goddeſs of corn, was unknown to the Greeks. They always denominated her Δημητηρ, *Demeter*, (whence *Demetrius*,) or *Damater*, which is rather an epithet than a proper name; formed of the Chaldaic particle, *da*, *the*, and *mater*, *mother*. CECROPS I. king of Attica had eſtabliſhed the worſhip of the Saitic ATHENA, or MINERVA, in that region, and conſecrated his capital to that deity Erectheus introduced the worſhip of Iſis or Damater. The ſubjects of Cecrops were a colony of Saites, and readily embraced the worſhip of Minerva; but the aborigines, being accuſtomed to a maritime life, were more inclined to conſecrate their city to Neptune. Cecrops by a ſtratagem ſecured the preference to Minerva. Erectheus, to give equal importance to his patroneſs, inſtituted the Eleuſinian myſteries.

(32.) The archprieſteſs, who perſonated the newly imported deity, was entertained by one Celeus, king or viceroy of the diſtrict of Eleuſis. (See Ceres.) Upon her arrival, a farce was acted not very ſuitable to the character of a goddeſs. Theſe indecencies attending the firſt appearance of the goddeſs, or the Egyptian dame who aſſumed her character, were copied from ſimilar unhallowed modes of behaviour, practiſed in the ſolemn proceſſions of her native country. Theſe coarſe jokes had an allegorical ſignification in Egypt; and among the moſt ancient Greeks the ſame ſpirit was diffuſed by the oriental coloniſts; but afterwards they abandoned the allegorical ſtyle, and loſt every idea of their religious, moral, or phyſical interpretation; while the ſhameful rencounter between *Ceres* and *Banbo*, or *Jambe*, was retained in the myſteries. (See *Appollodorus* and *Clemens Alexandrinus.*) At the time that Cerus arrived in Attica, Bacchus likewiſe made his appearance in that country. He was entertained by one Icarus; whom, as a reward for his hoſpitality, he inſtructed in the art of cultivating the vine, and making wine. Thus both agriculture and the art of managing the vintage were introduced into Athens about the ſame time. Ceres was a prieſteſs of Iſis; Bacchus was a prieſt of Oſiris. The arrival of thoſe two perſonages from Egypt, with a number of inferior prieſts in their train, produced a revolution in Athens, with reſpect to life, manners, and religion. The ſacred rites of Iſis, or the Eleuſinian myſteries, date their inſtitution from this period. When this company arrived at Eleuſis, they were entertained by the moſt reſpectable perſons in that diſtrict. Their names, according to Clem. Alexand. were Banbo, Dyſaulis, Triptolemus, Eumolpus, and Eubulus. From Eumolpus were deſcended a race of prieſts called Eumolpidæ, who figured at Athens many ages after. Triptolemus was an ox-herd, Eumolpus a ſhepherd, and Eubulus a ſwine-herd. Theſe were the firſt apoſtles of the Eleuſinian myſteries. Erectheus, or Pandion, countenanced the ſeminary, and built a ſmall temple for its accommodation in Eleuſis, a city of Attica, a few miles W. of Athens, and capital of one of the 12 diſtricts into which that territory was divided. This was the ſcene of thoſe renowned myſteries, which for near 2000 years were the pride of Athens.

(33.) The myſteries were divided into the *greater* and *leſſer*. The latter were celebrated at Agræ, a ſmall town on the Ilyſſus: the former were celebrated in the month *Boedronian;* the latter in that of *Antheſterion.* All the leſſer ceremonies deſcribed under the article Eleusinia, being duly performed, the candidate was carried into the hall appointed for initiation. There he was taught the firſt elements of thoſe arcana which were afterwards more fully revealed in the more auguſt myſteries of Eleuſis. The pupils at Agræ were called Mystæ, or probationers; thoſe of Eleuſis were denominated *Epoptæ*, importing that they ſaw as they were ſeen. The *leſſer* myſteries were divided into ſeveral ſtages, and candidates were admitted to them according to their quality and capacity reſpectively. Thoſe who were initiated in the loweſt were obliged to wait 5 years before they were admitted to the greater. Thoſe who had partaken of the 2d kind underwent a noviciate of 3 years; thoſe who had been admitted to the 3d, one of two years; and thoſe who had gone through the 4th were admitted to the greater at the end of one year; which was the ſhorteſt period of probation a candidate could legally undergo. As to the *greater* myſteries, originally none but the natives of Attica were admitted to them. In time, however, the pale was extended ſo far and wide as to comprehend all who ſpoke the Greek language; but all foreigners were debarred. Hercules, Bacchus, Caſtor, Pollux, Æſculapius, and Hippocrates, were initiated in an extraordinary manner, from a regard to their high character. All barbarians, too, were excluded; yet Anacharſis the Scythian was indulged that privilege, in conſequence of his reputation for ſcience. All perſons guilty of manſlaughter, all magicians, enchanters; all impious and profane perſons, were expreſsly prohibited the benefit of this pagan ſacrament. At laſt, however, the gate became wider, and people of all nations, provided their character was fair, were admitted. The Athenians at laſt initiated even their infants, that they might be under the protection of the goddeſs.

(34.) On the evening of the 15th day of *Boedromion* the initiations commenced, for all the moſt ſolemn rites of paganiſm were performed during the night; they were indeed generally *works of darkneſs*. On this day there was a ſolemn cavalcade of Athenian matrons from Athens to Eleuſis in carriages drawn by oxen. In this proceſſion the ladies uſed to rally one another in pretty looſe terms, in imitation of the Iſiac proceſſion deſcribed by Herodotus. The moſt remarkable object in this proceſſion was the *Mundus Cereris* contained in a ſmall coffer or baſket. This was carried by Athenian matrons, who, from their office, were ſtyled *Campboræ*. In this coffer were lodged the comb of Ceres, her mirror, a ſerpentine figure, ſome wheat and barley, the *pudenda* of the two ſexes, &c. The proceſſion ended at the temple, where this ſacred charge was depoſited with the greateſt ſolemnity. We have a complete deſcription of the temple of Eleuſis. That of its ruins, by Dr Chandler, is inſerted under Eleusis. Strabo informs us that the myſtic ſanctuary was as large as a theatre. In the porch of this temple, the candidates were crowned with garlands of flowers, which they called *bimera*, or *the deſirable*. They were dreſſed in new garments which they continued to wear till they were quite worn out. They waſhed their hands in a laver filled with holy water, as a ſymbol of purity. Before the doors were locked, one of the officers of the temple proclaimed with a loud voice a ſevere mandate, enjoining all the uninitiated to keep at a diſtance from the temple, and denouncing the moſt terrible menaces if any ſhould dare to pry into the holy myſteries. Any perſon who ventured into the ſanctuary, even through ignorance, was put to death without mercy.

(35.) The chief miniſter of theſe far-famed myſteries was the Hierophant. He was ſtyled An enjoyed that dignity during life, was always an Athenian, and preſided in the ſolemnity. The perſonage, ſays Euſebius, repreſented the *Demiurgus*, or *Creator*. "Now in the myſteries of Eleuſis (ſays he), the hierophant is dreſſed out in the figure of the demiurgus. The Demiurgus, (adds he), whom the Egyptians call *Cneph*, is figured as a man of an azure colour, ſhaded with black, holding in his right hand a ſceptre, and in his left a girdle, and having on his head a royal wing or feather wreathed round." See HIEROPHANT, § 2. The next miniſter was the *Dadachus*, or torch-bearer; who, according to Euſebius, was attired like the ſun, the viſible type of the ſupreme Demiurgus. See DADUCHI. The third was the perſon who officiated at the altar. He was habited like the moon. His office was to implore the favour of the gods for all the initiated. The ſacred herald was another principal actor. His province was to recite every thing that was to be communicated to the novices. He probably repreſented THOTH or Mercury, the interpreter of the gods. There were alſo 5 *epimeletæ* or curators, of whom the king was one, who jointly directed the whole ceremonial; and 10 prieſts to offer the ſacrifices.

(36.) We return to the MYSTÆ, or candidates for initiation. Euſebius, Clemens Alexandrinus, and Juſtin, mention a hymn compoſed by Orpheus, which was ſung by the MYSTAGOGUE upon that occaſion. That ſome ſacred hymn was chanted, is highly probable; but that it was compoſed by Orpheus, appears problematical. Before the ceremony opened, a book was produced, which contained every thing relating to the teletæ. This was read over to the myſtæ; who were ordered to write out copies of it. It was kept at Eleuſis in a ſacred repoſitory, called PETROMA, between two large ſtones.

(37.) The initiations began with a repreſentation of the wanderings of Ceres, and her lamentations for her daughter. One of the company having kindled a firebrand at the altar, and ſprung to a place in the temple, waving the torch furiouſly, a 2d ſnatched it from him, roaring and waving it in the ſame frantic manner; then a 3d, a 4th, &c. in the moſt rapid ſucceſſion. This was n imitation of Ceres, who perluſtrated the earth with a flaming pine in her hand, which ſhe had ighted at mount Etna. When the pageant of he goddeſs was ſuppoſed to arrive at Eleuſis, a olemn pauſe enſued, and a few trifling queſtions were put to the myſtæ. The *mundus Cereris* was then diſplayed before the myſtæ, and the MYSTAGOGUE read a lecture on the allegorical import of thoſe ſymbols, which was heard with the moſt olemn ſilence. Many traditions were then communicated to the myſtæ concerning the origin of he univerſe, &c. as we learn from Clemens Alex. nd Cicero. This coſmogony was that of the moſt ancient Egyptians, and of the orientals in general. It is beautifully exhibited in Plato's Timæus, and by Ovid in his *Metamorph. Lib.* I. *Fab.* —3. The next ſcene conſiſted of the exploits of he gods, demigods, and heroes, who had been dvanced to divine honours. Theſe were diſplayed as paſſing before the myſtæ in pageants fabricated on purpoſe. But though thus "there were gods many and lords many;" yet it is evident rom Euſebius, that the unity of the Supreme Being was maintained and inculcated. This was the original doctrine of the Hierophants of Egypt: It was maintained by Thales and all the Ionian ſchool. It was the doctrine of Pythagoras, who probably gleaned it up in Egypt, along with many other dogmas which he claimed as his own.

(38.) But however the unity, and ſome of the moſt obvious attributes of the Supreme Being, might be inculcated, the tribute of homage was duly paid to the ſubordinate divinities. The initiated were taught to look to the *dii majorum gentium* with awe and veneration, as beings endowed with ineffable power, wiſdom, purity, goodneſs, &c. Theſe they were exhorted to adore; to offer ſacrifices, prayers, &c. They were inſtructed to look up to hero-gods and demi-gods, as beings exalted to the high rank of governors of different parts of nature, as the immediate guardians of the human race; in ſhort, as gods near at hand, ready upon all occaſions to confer bleſſings upon the virtuous.' As the two chief ends of theſe initiations were the exerciſe of heroic virtues in men, and the practice of uniform piety by the candidates for immortal happineſs, the hierophants had adopted a plan well accommodated to theſe purpoſes. The virtuous conduct and heroic exploits of the demi-gods were magnified by the moſt pompous elogiums, and enforced with ſuitable exhortations. The heroes and demi-gods themſelves were diſplayed in pageants, or vehicles of celeſtial light. Their honours, offices, and other appendages, were exhibited with all the ſplendor that the ſacerdotal college were able to deviſe. The ſudden glare of mimic light, the melting muſic ſtealing upon the ear, the artificial thunders reverberated from the roof and walls of the temple, the appearance of fire and ethereal radiance, the vehicles of flame, the effigies of heroes and demons adorned with crowns of laurel, the fragrant odours and aromatic gales which breathed from every quarter, all dexterouſly counterfeited by ſacerdotal mechaniſm, muſt have filled the imagination of the aſtoniſhed votaries with pictures at once tremendous and tranſporting. Every thing being tranſacted in the dead of night amidſt a diſmal gloom; whence the moſt bright effulgence inſtantaneouſly burſt upon the ſight, the aſpirants to initiation were wonderfully animated to the practice of virtue while they lived, and inſpired with the hope of a bleſſed immortality when they died; while their awe for the gods was wonderfully enhanced by theſe appearances.

(39.) But as all the candidates for initiation might not aſpire to the rank of heroes and demigods; a more eaſy and more attainable mode of conduct, to arrive at the place of happineſs, behoved to be opened. Private virtues were inculcated, and theſe, too, were to meet a proper reward. The conductors of the myſteries urged the doctrine of a future ſtate of rewards and puniſhments. The immortality of the ſoul was elucidated and inculcated. This doctrine was likewiſe imported from Egypt; for Herodotus ſays (*Lib.* ii.), "that the Egyptians were the firſt people who maintained the immortality of the human ſoul." The Egyptian immortality, however, according to him, was only the metempſychoſis. This was not the ſyſtem of the ancient Egyptians, nor indeed of the teletæ. In theſe, a metempſychoſis was admitted; but that was carried forward to a very diſtant period, to wit, to the grand Egyptian period of 36,000 years. As the myſtagogues well knew that men are more powerfully affected by objects preſented to the eyes, than by the moſt engaging inſtructions conveyed by the ear, they made the emblems of Elyſium and Tartarus paſs in review before the eyes of their novices. There the Elyſian ſcenes, ſo nobly deſcribed by the Roman poet, appeared in mimic ſplendor; while the gloom of Tartarus, the three-headed dog of hell, the furies with treſſes of ſnakes, the tribunals of Minos, Æacus, and Rhadamanthus, &c. were diſplayed in all their terrific ſtate. Tantalus, Ixion, Siſyphus, the daughters of Danaus, &c. were repreſented in pageants before their eyes. Theſe exhibitions were accompanied with moſt horrible cries and howlings, thunders, lightning, and other objects of terror. No contrivance could be better accommodated to animate the pupils to the practice of virtue, or to deter them from indulging vicious paſſions. The worſhip of the gods was ſtrictly enjoined. The three laws aſcribed to TRIPTOLEMUS were ſtrictly inculcated, 1. To honour their parents; 2. To honour the gods with the firſt fruits of the earth; 3. Not to treat brutes with cruelty. Cicero makes the civilization of mankind one of the moſt beneficial effects of the Eleuſinian inſtitutions.

(40.) The initiated then bound themſelves by dreadful oaths to obſerve and practiſe every precept tendered to them in the courſe of the teletæ; and never to divulge one article of all that had been heard or ſeen by them. In this they were ſo exceedingly jealous, that Æſchylus the tragedian was in danger of capital puniſhment, for having only alluded to one of the Eleuſinian arcana in a tragedy; and one of the articles of indictment againſt Diagoras the Melian was, his having ſpoken diſreſpectfully of the myſteries, and diſſuaded people from partaking of them. To impreſs theſe maxims the more deeply upon the minds of the novices, a mechanical operation was played off at a certain interval during the celebration. "Towards the end of the celebration (ſays Stobæus) the whole ſcene is terrible; all is trembling, ſhuddering, ſweat, and aſtoniſhment. Many horrible ſpectres are ſeen, and ſtrange cries and howlings uttered. Light ſucceeds darkneſs; and again the blackeſt darkneſs the moſt glaring light. Now appear open plains, flowery meads, and waving groves; where are ſeen dances and choruſes; and various holy phantaſies enchant the ſight. Melodious notes are heard from far, with all the ſublime ſymphony of the ſacred hymns. The pupil, now completely perfect, is initiated, becomes free, releaſed, and walks about with a crown on his head, and is admitted to bear a part in the ſacred rites." Ariſtides, *de Myſt. Eleuſ.* calls ELEUSIS "a kind of temple of the whole earth, and of all that man beholds done in the moſt dreadful and moſt exhilarating manner." Pletho, in the oracles of Zoroaſtres, informs us, "that frightful and ſhocking apparitions, in a variety of forms, uſed to be diſplayed to the myſtæ in the courſe of their initiation:" and "that thunder, lightning and fire, and every thing terrible which might be held ſymbolical of the divine preſence, were introduced." Claudian, in his poem *De Rapta Pro ſerpina*, gives an elegant, though brief, deſcription of theſe ſcenes. The ſight of thoſe appearances was called *Autopſia*, or *the real preſence*: hence thoſe rites were called *Epoptica*. The *Epoptæ* were actually initiated, and were admitted into the *Sanctum Sanctorum*, and bore a part in the ceremonial: whereas the *myſtæ* were obliged to take their ſtation in the porch of the temple. The candidates for initiation bathed themſelves in holy water, and put on new clothes of linen, which they continued to wear till they were quite torn, and then they were conſecrated to Ceres and Proſerpine. From the ceremony of bathing they were called *Hydranoi*; and this was a kind of baptiſmal abſolution.

(41.) The Epoptæ having ſuſtained all these fiery trials, heard and ſeen every thing requiſite, taken upon them the vows and engagements, and, in a word, having ſhown themſelves good ſoldiers of Ceres and Proſerpine, were now declared *perfect men*. They were crowned with laurel, and diſmiſſed with two barbarous words, Κογξ ομπαξ, *Konx ompax*, of which perhaps the Hierophants themſelves did not comprehend the import. They had been introduced by the firſt Egyptian miſſionaries, and retained after their ſignification was loſt. This was a common practice among the Greeks. In the adminiſtration of their religious ceremonies, they retained many names of perſons, places, things, cuſtoms, &c. which had been introduced by the Phœnicians and Egyptians, from whom they borrowed their ſyſtem of idolatry. Theſe terms conſtituted the language of the gods, ſo often mentioned by Homer. The above words appear to be Syriac, and to ſignify, *be vigilant, be innocent*. Numerous and important were the advantages ſuppoſed to redound to the initiated, from their being admitted to partake of the myſteries, both in this life and that which is to come. Euripides, in his *Bacchæ* (*Act* I, &c.) introduces the chorus extolling the happineſs of thoſe who had been acquainted with God, by participating in the holy myſteries, and whoſe minds had been enlightened by the myſtical rites. The happy influences of the teletæ, were ſuppoſed to adminiſter conſolation to the Epoptæ in the hour of diſſolution. Iſocrates confirms this; and ARISTIDES (*de Myſt. Eleuſ.*) tells us, "that the initiated were not only often reſcued from many hardſhips in their lifetime, but at death entertained hopes that they ſhould be raiſed to a more happy condition." After death, they were, in the Elyſian fields, to enjoy ſuperior degrees of felicity, to baſk in eternal ſunſhine, to quaff nectar, and feaſt upon ambroſia, &c.

(42.) The prieſts made their diſciples believe that the ſouls of the uninitiated, when they arrived in the infernal regions, ſhould roll in mire and dirt, and with very great difficulty arrive at their deſtined manſion. Hence Plato introduces Socrates obſerving, "that the ſages who inſtituted the teletæ had poſitively affirmed, that whatever ſouls ſhould arrive in the infernal manſions *unhouſell'd* and *unanneal'd*, ſhould lie there immerſed in mire and filth." And as to a future ſtate (ſays Ariſtides), "the initiated ſhall not roll in mire and grope in darkneſs; a fate which awaits the unholy and uninitiated." When the Athenians adviſed DIOGENES to get himſelf initiated, and enforced their arguments with the above conſiderations, "It will be pretty enough (replied the philoſopher) to ſee AGESILAUS and EPAMINONDES wallowing in the mire, while the moſt contemptible raſcals who have been initiated are ſtrutting in the iſlands of bliſs." When ANTISTHENES was to be initiated in the Orphic myſteries, and the prieſt was boaſting of the many aſtoniſhing benefits which the initiated ſhould enjoy in a future ſtate, "Why (ſays Antiſthenes) 'tis wonder your reverence don't e'en hang yourſelf, to come at them the ſooner." But when ſuch benefits were believed to be derived from the myſteries, it is no wonder if all the world crowded to the Eleuſinian ſtandard. After the Macedonian conqueſts, the Hierophants abated much of their original ſtrictneſs. In the age of Cicero, Eleuſis was a temple to which all nations reſorted. Almoſt all the great men of Rome were initiated. The Hierophants, however, refuſed to admit NERO on account of the profligacy of his character. Few others were refuſed that honour.

(43.) This inſtitution gradually degenerated, but how much, and in what points, it is difficult to inveſtigate. The fathers of the church are not always to be truſted, when they arraign the inſtitutions of Paganiſm. Melanthius, Menander, Sotades, &c. wrote purpoſely on the ſubject, but their works are long ſince loſt. The two moderns, who have laboured moſt ſucceſsfully in this field, are Meurſius and Warburton. The former, in his *Liber Singularis*, has collected every thing that can be gleaned from antiquity relating to theſe inſtitutions, without, however, pointing out their original, or elucidating the end and import of their eſtabliſhment. The latter has drawn them into the vortex of a ſyſtem which has in many inſtances led him to aſcribe to them a higher degree of merit than they deſerve.

(44.) Theſe myſteries continued in high reputation to the age of St Jerome. The Emperor Valentinian intended to have ſuppreſſed them; but Zozimus ſays, he was diverted from his deſign by the proconſul of Greece. At length Theodoſius I. prohibited the celebration of theſe and all the other ſacra of Paganiſm. They had maintained their ground near 2000 years; during which ſpace the celebration of them never had been interrupted but once. When Alexander the Great maſſacred the Thebans and razed their city, the Athenians were ſo much affected with this melancholy event, that they neglected the celebration of that feſtival.

(45.) There were many other myſterious inſtitutions among the ancient Pagans, but the above were the moſt celebrated. The *Samothracian myſteries*, inſtituted in honour of the Cabiri, were likewiſe of conſiderable celebrity, and were ſuppoſed to confer the ſame bleſſings with the Eleuſinian, but were not of equal celebrity. The CABIRI were Phœnician and likewiſe Egyptian deities. Bochart has explained their origin, number, names, and ſome part of their worſhip. The Orphic myſteries, were likewiſe famous among the Thracians. Orpheus learned them in Egypt, and they were nearly the ſame with the BACCHANALIA of the Greeks. There were likewiſe the myſteries of JUPITER IDÆUS in great requeſt among the Cretans, and thoſe of CYBELE celebrated in Phrygia. To enumerate and detail all theſe would require a volume.

* MYSTERIOUS. *adj.* [*myſterieux*, French; from *myſtery*.] 1. Inacceſſible to the underſtanding; awfully obſcure.—

God at laſt
To Satan, firſt in ſin, his doom apply'd,
Though in *myſterious* terms. *Milton.*
Then the true Son of knowledge firſt appear'd,
And the old dark *myſterious* clouds were clear'd. *Denham.*

2. Artfully perplex'd.—Thoſe princes, who were diſtinguiſhed for *myſterious* ſkill in government, found, by the event, that they had ill conſulted their own quiet, or the happineſs of their people. *Swift.*

* MYSTERIOUSLY. *adv.* [from *myſterious*.] 1. In a manner above underſtanding. 2. Obſcurely; enigmatically.—Our duty of preparation contained in this one word, try or examine, being, after the manner of myſteries, *myſteriouſly* and ſecretly deſcribed, there is reaſon to believe that there is in it very much duty. *Taylor.*—

Each ſtain *myſteriouſly* was meant. *Milton.*

* MYSTERIOUSNESS. *n. ſ.* [from *myſterious*.] 1. Holy obſcurity.—My purpoſe is, to gather together, into an union, all thoſe ſeveral portions of truth, and differing apprehenſions of *myſteriouſneſs*. *Taylor.* 2. Artful difficulty or perplexity.

* *To* MYSTERIZE. *v. a.* [from *myſtery*.] To explain as enigmas.—*Myſterizing* their enſigns, they make the particular ones of the twelve tribes accommodable unto the twelve ſigns of the zodiac. *Brown.*

(1.) * MYSTERY. *n. ſ.* [μυϛήριον; *myſtere*, Fr.] 1. Something above human intelligence; ſomething awfully obſcure.—

They can judge as fitly of his worth,
As I can of thoſe *myſteries* which heav'n
Will not have earth to know. *Shak. Coriol.*

—Upon holy days, let the matter of your meditations be according to the *myſtery* of the day; and to your ordinary devotions of every day, add the prayer which is fitted to the *myſtery*. *Taylor.*—If God ſhould pleaſe to reveal unto us this great *myſtery* of the Trinity, or ſome other *myſteries* in our holy religion, we ſhould not be able to underſtand them, unleſs he would beſtow on us ſome new faculties of the mind. *Swift.* 2. An enigma; any thing artfully made difficult.—To thy great comfort in this *myſtery* of ill opinions, here's the twin brother of thy letter. *Shak.*

by tradition ſtole into a total verity, which was but partially true in its covert ſenſe and morality. *Brown.*

* MYTHOLOGICALLY. *adv.* [from *mythological.*] In a manner ſuitable to the ſyſtem of fables.

* MYTHOLOGIST. *n. ſ.* [from *mythology.*] A relator or expoſitor of the ancient fables of the heathens.—The grammarians and *mythologiſts* ſeem to be altogether unacquainted with his writings. *Creech.*—It was a celebrated problem among the ancient *mythologiſts*, What was the ſtrongeſt thing, what the wiſeſt, and what the greateſt? *Norris.*

* *To* MYTHOLOGIZE. *v. n* [from *mythology.*] To relate or explain the fabulous hiſtory of the heathens.

MYTHOLOGY.

(1.) * MYTHOLOGY. *n. ſ.* [from μυθος and λογος; *mythologie*, French.] Syſtem of fables; explication of the fabulous hiſtory of the gods of the heathen world.—The modeſty of *mythology* deſerves to be commended; the ſcenes there are laid at a diſtance; it is once upon a time, in the days of yore, and in the land of Utopia. *Bentley.*

(2.) MYTHOLOGY, in its original import, ſignifies any kind of fabulous doctrine; in its more appropriated ſenſe, it means thoſe fabulous details concerning the objects of worſhip, which were invented and propagated by men who lived in the early ages of the world, and by them tranſmitted to ſucceeding generations, either by written records or by oral tradition. The theology and mythology of the ancients are therefore almoſt inſeparably connected.

(3.) With reſpect to FABLE, it is a creature of the human imagination, and derives its birth from that love of the *marvellous* which is congenial to the ſoul of man. The appearances of nature which every day occur, objects, actions, and events, which ſucceed each other, ſeem too familiar and unintereſting to gratify curioſity, or to excite admiration. But when the moſt common phenomena in nature or life are new-modelled by a warm imagination; when they are diverſified, compounded, embelliſhed, or arranged into forms which ſeldom or never occur in the ordinary courſe of things; novelty generates admiration, a paſſion always attended with delightful ſenſations. Here then is the ſource of *fiction* and *fable*.

(4.) Many circumſtances contributed to extend and eſtabliſh the empire of fable. The legiſlator laid hold on this bias of human nature, and employed *fable* and *fiction* as the moſt effectual means to civilize a rude world. Philoſophers, theologiſts, poets, muſicians, made uſe of this vehicle to convey their inſtructions to the ſavage tribes. They knew that *truth*, ſimple and unadorned, is not poſſeſſed of charms powerful enough to captivate the heart of man in his preſent degenerate ſtate. This conſideration naturally led them to employ fiction and allegory.

(5.) Though almoſt every nation on the globe has fabricated its own ſyſtem of mythology, the Orientals have diſtinguiſhed themſelves by the boldneſs, the inconſiſtency, and the extravagance of their mythology. The genial warmth of thoſe happy climes, the fertility of the ſoil, which afforded every neceſſary, and often every luxury of life, without great laborious exertions; the face of nature perpetually blooming around them, the ſkies ſmiling with uninterrupted ſerenity; all contributed to inſpire the orientals with a glow of fancy and vigour of imagination rarely met with in leſs happy regions. Hence every object was ſwelled beyond its natural dimenſions. Nothing was great or little in moderation, but every ſentiment was heightened with incredible hyperbole. The magnificent, the ſublime, the vaſt, the enormous, the marvellous, firſt ſprung up, and were brought to maturity in thoſe native regions of fable; and were thence tranſplanted into the weſtern countries.

(6.) As the allegorical taſte of the eaſtern nations had ſprung from their propenſity to fable, ſo ALLEGORY in proceſs of time contributed to multiply fables and fiction almoſt infinitely. The latent import of the allegorioal doctrines being in a few ages loſt, what was originally a moral or theological tenet, aſſumed the air of a perſonal adventure. The propenſity towards PERSONIFICATION, almoſt univerſal among the orientals, was another fruitful ſource of fable and allegory. That the people of the eaſt were ſtrongly inclined to perſonify inanimate objects and abſtract ideas, will be readily granted, when it is conſidered, that in the formation of language they have generally annexed ſexes to names. Hence the diſtinction of grammatical genders, which originated in the eaſtern parts of the world.

(7.) The general uſe of HIEROGLYPHICS in the eaſt alſo contributed largely to extend the empire of mythology. As the import of the figures employed was arbitrary, miſtakes muſt have been often committed in aſcertaining what they were intended to repreſent. When the developement of theſe arbitrary ſigns was attended with uncommon difficulty, the expounders were obliged to have recourſe to conjecture. The wiſe men of the eaſt delighted in obſcure enigmatical ſentences. Their dark ſayings often occur in the moſt ancient records. The ſages of antiquity uſed to vie with each other for the prize of ſuperior wiſdom, by propounding riddles and myſterious queſtions, as ſubjects of inveſtigation. The conteſt between Solomon and Hiram, and that between Amaſis king of Egypt and Polycrates tyrant of Samos, are well known. As the import of thoſe enigmatical propoſitions was often loſt, nothing remained but fancy and conjecture, which always verged towards fable. This was another ſource of mythology.

(8.) The Pagan prieſts, eſpecially in EGYPT, were probably the firſt who reduced mythology to a ſyſtem. The ſacerdotal tribe, among that people, were the grand depoſitories of learning and religion. They monopolized all the arts and ſciences; and precluded the laity from all intellectual improvement. This was done to keep the laity in ſubjection, and to enhance their own importance. The language of Ethiopia became their ſacred dialect, and hieroglyphics their ſacred character. Egypt, of courſe, became a kind of fairyland, where all was jugglery, magic, and enchantment. The initiated alone were admitted to the knowledge of the occult myſtical exhibitions, which conſtituted the eſſence of their religion. (See MYSTERIES.) The Egyptians, and indeed all the ancients, deemed the myſteries of religion too ſacred to be communicated to the herd of mankind, naked and unreſerved. Egypt was the land of graven images; allegory and mythology were the veils which concealed religion from the vulgar.

(6.) In the earlieſt ſtage of ſociety we cannot ſuppoſe fable to have exiſted among men. Fables are always *tales of other times*, but at this period other times did not reach far enough backward to afford thoſe fruits of the imagination time to arrive at maturity. Fable requires a conſiderable ſpace of time to acquire credibility, and to riſe into reputation. The Chineſe and Egyptians, the two moſt ancient nations whoſe annals have reached our times, were unacquainted with fabulous details in the moſt early periods of their monarchies. It has been ſhown almoſt to a demonſtration, by a variety of learned men, that both theſe people, during ſome centuries after the general deluge retained and practiſed the primitive Noachic religion, in which fable could find no place; all was genuine unſophiſticated truth.

(10.) As ſoon as the authentic tradition concerning the creation was either loſt or adulterated, fiction began to prevail. The Egyptian THOTH, THYOTH, or Mercurius Tiſmegiſtus, and Mochus the Phœnician, undertook to account for the formation and arrangement of the univerſe, upon principles purely mechanical. Here fable began to uſurp the place of hiſtorical truth. Accordingly, all the hiſtorians of antiquity, who have given a general detail of the affairs of the world, have uſhered in their narration with a fabulous coſmogony. Here imagination ranged unconfined over the boundleſs extent of the primary chaos. To be convinced of this, we need only look into Sanchomathons's Coſmogony, Euſeb. Præp. Evang. l. 1. and Diodorus Sic. l. 1. From this it follows that the firſt fables owed their birth to the erroneous opinions of the formation of the univerſe.

(11.) The CHINESE, if any credit be due to their annals, or to the miſſionaries of Rome, who copied from them, were *the firſt of the nations*. Their fabulous records reach upwards many myriads of years before the creation. The events during that period, if any had been recorded, muſt have been equally fabulous. Theſe, however, are buried in eternal oblivion. The miſſionaries repreſent the Chineſe as having retained the religion of Noah many centuries after the foundation of their empire. Upon this ſuppoſition, their coſmogony muſt have been genuine. FOHI is ſaid to have laid the foundation of that empire about 4000 years ago. This emperor, according to the Chineſe, was conceived in a miraculous manner. (See CHINA, § 7.) He was half a man and half a ſerpent. His intellectual powers were truly hyperbolical. In one day he diſcovered 50 different ſpecies of poiſonous herbs. He taught his countrymen the art of agriculture. He invented boats and nets for fiſhing, the art of fabricating porcelain, the management of ſilk-worms, the manufacturing of ſilk, &c. He compoſed that incomparable body of laws which are ſtill the wonder of the Chineſe. This whole detail is fabulous, but the Chineſe, in aſcribing the invention of all the uſeful arts to Fohi, reſemble the other nations of antiquity. The Indians aſcribe every invention to BUDHA, VISHNOU, or FOE; the Perſians to ZOROASTER; the Chaldeans to OANNES; the Egyptians to THOTH; the Phœnicians to MELICERTA; the Greeks to the family of the TITANS; and the Scandinavians to ODIN, &c.

(12.) About A. A. C. 551 appeared the famous Chineſe philoſopher, *Con-fu-tſe*, or CONFUCIUS. Concerning the birth of this prince of philoſophers, the Chineſe have the following legend. His mother, walking in a ſolitary place, was impregnated by the vivifying influence of the heavens. The babe, thus produced, ſpake and reaſoned as ſoon as he was born. Confucius, however, wrought no miracles, performed no romantic exploits, but lived an auſtere aſcetic life, inculcated morality, and died, remarkable only for ſuperior wiſdom, religious, moral, and political.

(13.) About A. D. 601, flouriſhed the ſectary LAO-KIUN. His mother carried him 30 years in her womb, and was at laſt delivered of him under a plum tree. This philoſopher was the Epicurus of the Chineſe. His diſciples, who were denominated *Tao-ſſe*, i. e. *heavenly doctors*, were the firſt who corrupted the religion of the Chineſe. (See CHINESE, § 27.) Their doctrine was embraced by many of the emperors. One of theſe, called *Youti*, had loſt a favourite miſtreſs, whom he loved with the moſt extravagant paſſion. By the magical ſkill of one of theſe doctors he obtained an interview with his deceaſed miſtreſs; a circumſtance which rivetted the whole order in the affection of the deluded prince. This fable is a counterpart of that of ORPHEUS and EURYDICE.

(14.) The worſhip of the idol Foe was tranſplanted from India into China about A. D. 65. (See CHINESE, § 27.) The doctrine and worſhip of Foe made a moſt rapid progreſs all over China, Japan, Siam, &c. The prieſts of Foe are called among the Siameſe, TALAPOINS; by the Tartars, LAMAS; by the Chineſe, *Ho-chang*; and by the people of Japan, *Bonzes*. By this laſt appellation they are generally known in Europe. (See BONZES, &c.) An incredible number of fables were invented and propagated by the diſciples of Foe, concerning their maſter. If the earlier ages of the Chineſe hiſtory are barren of mythological incidents, the later periods, after the introduction of the worſhip of Foe, furniſh an inexhauſtible ſtore of miracles, monſters, fables, intrigues, exploits, and adventures, of the moſt villanous complexion. Indeed, moſt of them are ſo abſurd, ridiculous, impious, and profane, that our readers will eaſily diſpenſe with a detail, from which they cou'd reap neither entertainment nor inſtruction. Such as are diſpoſed to rake into this abominable puddle, we refer to the reverend fathers Du

Halde, Couplet, Amiot, Kircher, &c. in whoſe writings they will find wherewithal to ſatisfy, and even to ſurfeit, their appetite.

(15.) The HINDOOS, like the other nations of the eaſt, for a long time retained the worſhip of the true God. At length, however, idolatry broke in, and, like an impetuous torrent, overwhelmed the country. The genuine hiſtory of the origin of the univerſe was either utterly loſt, or diſguiſed under a variety of fictions. We are told that BRIMHA, the ſupreme divinity of the Hindoos, created four perſons, whom he appointed to rule over all the inferior creatures. Afterwards he joined his efficient power with Biſhon and Rulder; and by their united exertions they produced ten men, whoſe general appellation is *Munies*, that is, the inſpired. According to another mythology, Brimha produced four other perſons, one from his breaſt, one from his back, one from his lip, and one from his heart. Theſe children were denominated *Bangs*; a word we cannot explain. Another tradition, reſpecting the origin of the 4 great tribes is mentioned under the article GENTOOS; and accounts for the 4 *caſts* or *ſepts* into which the Hindoo nation has from time immemorial been divided.

(16.) The Hindoos have likewiſe ſome mythological opinions which ſeem to relate to the general deluge. They tell us, that deſiring the preſervation of herds and of brahmans, of genii and of virtuous men, of *vedas* of law, and of precious things, the Lord of the univerſe aſſumes many bodily ſhapes; but though he pervades, like the air, a variety of beings, yet he is himſelf unvaried, ſince he has no quality in him ſubject to change. At the cloſe of the laſt *calpa* there was a general deſtruction, occaſioned by the ſleep of Brahme, whence his creatures in different worlds were drowned in a vaſt ocean. Brahme being inclined to ſlumber after ſo many ages, the ſtrong dæmon *Hayagri-va* ſtole the *vedas* which flowed from his lips. When *Heri*, the preſerver of the univerſe, diſcovered this deed of the prince of *Dainavas*, he took the ſhape of a minute fiſh called *Sap-hari*. After various transformations, and an enormous increaſe of ſize in each of them, the Lord of the univerſe loving the righteous man, called *Muna*, or *Stratgavrata*, who had ſtill adhered to him under all theſe various ſhapes; and intending to preſerve him from the ſea of deſtruction cauſed by the depravity of the age, thus told him how he was to act: "In ſeven days from the preſent time, O thou Tamer of enemies! the three worlds will be plunged in an ocean of death; but in the midſt of the deſtroying waves a large veſſel ſent by me for thy uſe ſhall ſtand before thee." The remaining part of the mythology ſo nearly reſembles the Moſaic hiſtory of Noah and the general DELUGE; that it appears to have been borrowed from it. To dry up the waters of the deluge, the power of the Deity deſcends in the form of a *boar*, the ſymbol of ſtrength, to draw up and ſupport on his tuſks the whole earth, which had been ſunk beneath the ocean. The ſame power is repreſented as a tortoiſe ſuſtaining the globe, which had been convulſed by the violent aſſaults of dæmons, while the gods charmed the ſea with the mountain *Mandar*, and forced it to diſgorge the ſacred things and animals, together with the water of life which it had ſwallowed. All theſe ſtories relate to the ſame event, ſhadowed by a moral, a metaphyſical, and an aſtronomical allegory; and all ſeem connected with the hieroglyphical ſculptures of the ancient Egyptians.

(17.) The Hindoos divide the duration of the world into four YUGS, or *Jogues*, each conſiſting of a prodigious number of years. (See GENTOOS, and JOGUES.) According to the mythology of the Hindoos, the ſyſtem of the world is ſubject to various diſſolutions and reſuſcitations. At the concluſion of the Collee Jogue, ſay they, a grand revolution will take place, when the ſolar ſyſtem will be conſumed by fire, and all the elements reduced to their original conſtituent atoms. Upon the back of theſe revolutions, Brimha is ſometimes repreſented as a new-born infant, with his toe in his mouth, floating on a camala or water flower, ſometimes only on a leaf of that plant, on the ſurface of the vaſt abyſs. At other times he is figured as coming forth of a winding ſhell; and again as blowing up the mundane foam with a pipe at his mouth.

(18.) The vulgar religion of the ancient Hindoos opens a large field of mythological adventures. The FO or FOE of the Chineſe was imported from India. (See CHINESE, § 27.) His followers relate, that he was born in a kingdom of India near the line, and that his father was of that country. His mother brought him forth by the left ſide, and expired ſoon after her delivery. At the time of her conception, ſhe dreamed that ſhe had ſwallowed a white elephant; a circumſtance which has given birth to the veneration which the monarchs of India have always ſhown for a white elephant. As ſoon as he was born he ſtood erect without aſſiſtance. He walked abroad at ſeven, and, pointing with one hand to the heavens, and with the other to the earth, he cried out, "In the heavens, and on the earth, there is no one but me who deſerves to be honoured." At the age of 30, he felt himſelf filled with the divinity; and now he was metamorphoſed into Fo or PAGOD. He now began to propagate his doctrine, and prove his divine miſſion by miracles. The number of his diſciples was immenſe; and they ſoon ſpread his dogmas over all India, and even to the extremities of Aſia.

(19.) One of the principal doctrines which Fo and his diſciples propagated, was the METEMPSYCHOSIS OF TRANSMIGRATION of ſouls; which has given riſe to the multitude of idols reverenced in every country where the worſhip of Fo is eſtabliſhed. Quadrupeds, birds, reptiles, and the vileſt animals, had temples erected for them; becauſe, ſay they, the ſoul of the god, in his numerous tranſmigrations, may have at one time or other inhabited their bodies. Both tranſmigration and the worſhip of animals ſeem, however, to have been imported from Egypt into India. The former was early eſtabliſhed among the Egyptians. It was, indeed, the only idea they had of the ſoul's immortality. The worſhip of animals ſeems to have been ſtill more ancient. That colonies of Egyptians did actually penetrate into India and ſettle there, many centuries before the nativity, is an undoubted fact. From the hieroglyphical repreſentations of the Egyptian deities ſeem to have originated thoſe monſtrous idols, which from time immemorial have been worſhipped in India, China, Japan, Siam, and the remoteſt parts of Aſiatic Tartary. See POLYTHEISM.

(20.) FOE is often called *Budha*, *Budda*, and ſometimes VISHNOU. Vaſt numbers of fables were propagated by his diſciples concerning him after his death. They pretended that he was ſtill alive; that he had been already born 8000 times, and that he had ſucceſſively appeared under the figure of an ape, a lion, a dragon, an elephant, a boar, &c. Theſe were called the incarnations of Viſhnou. At length he was confounded with the ſupreme God; and all the titles, attributes, operations, perfections, and enſigns of the Moſt High were aſcribed to him. Sometimes he is called AMIDA, repreſented with the head of a dog, and worſhipped as the guardian of mankind. He ſometimes appears as a princely perſonage, iſſuing from the mouth of a fiſh. At other times, he has a lunette on his head, in which are ſeen cities, mountains, towers, trees, and all that the world contains. Theſe transformations were evidently derived from allegorical or hieroglyphical emblems, and form an exact counterpart to the ſymbolical worſhip of the Egyptians. The enormous maſs of mythological traditions which have deluged the vaſt continent of India, would fill many volumes. The preceding articles afford a ſpecimen, by which our readers may judge of the reſt. If they wiſh to gratify their curioſity at greater length, they may conſult Thevenot's and Hamilton's Travels, Aquetil's *Zendaveſta*, Halhed's Introduction to his tranſlation of the Code of Gentoo Laws, Col. Dow's Hiſtory of Hindoſtan, Groſe's Voyage to the Eaſt Indies, Aſiatic Reſearches, vol i. and ii. &c.

(21.) The mythology of the PERSIANS, is, if poſſible, ſtill more extravagant than that of the Hindoos. It ſuppoſes the world to have been repeatedly deſtroyed, and repeopled by creatures of different formation, who were ſucceſſively annihilated or baniſhed for their diſobedience to the ſupreme Being. The monſtrous griffin SINEROH tells the hero *Caherman*, that ſhe had already lived to ſee the earth 7 times filled with creatures, and 7 times a perfect void; that, before the creation of Adam, this globe was inhabited by two races of beings, called PERI and *Dives*, whoſe characters formed a perfect contraſt. The Peri are deſcribed as beautiful and benevolent; the Dives as deformed, malevolent, and miſchievous, differing from infernal demons only in this, that they are not yet confined to hell. They are ever ranging over the world, to ſcatter diſcord and miſery among men. The Peri reſemble the fairies of Europe; and the Dives the giants and magicians of the middle ages. The Peri and Dives wage inceſſant wars; and when the Dives make any of the Peri priſoners, they ſhut them up in iron cages, and hang them on the higheſt trees, to expoſe them to the fury of every chilling blaſt. When the Peri are in danger of being overpowered by their foes, they ſolicit the aſſiſtance of ſome mortal hero; which produces a ſeries of mythological adventures, highly ornamental to the ſtrains of the Perſian bards, and furniſhes an inexhauſtible fund of the moſt diverſified machinery.

(22.) One of the moſt celebrated adventurers in the mythology of Perſia, is TAHMURAS, one of their moſt ancient monarchs. This prince performs a variety of exploits, while he endeavours to recover the fairy *Merjan*. He attacks the Dive *Demruſh* in his own cave; where, having vanquiſhed the demon, he finds vaſt piles of hoarded wealth, which he carries off with the fair captive. The battles, labours, and adventures of *Roſtan*, another Perſian worthy, are celebrated by the Perſian bards with the ſame extravagance of hyperbole with which the labours of Hercules have been ſung by the poets of Greece and Rome. The adventures of the Perſian heroes breathe all the wildneſs of achievement recorded of the knights of Gothic romance. The enchantments, transformations, &c. exhibited in both, are characteriſtic ſymptoms of one common original. Perſia is the genuine claſſic ground of eaſtern mythology, and the ſource of the ideas of chivalry and romance; from which they were propagated to the regions of Scandinavia, and the remoteſt corners of Europe towards the weſt. Perhaps the tales of the wars of the Peri and Dives originated from a vague tradition concerning good and bad angels: and, probably, the fable of the wars between the gods and giants, ſo famous in the mythology of Greece and Rome, was imported into the former country from the ſame quarter. For a more particular account of the Perſian mythology, our readers may conſult Dr Hyde *De Relig. vet. Perſ. Medor.* &c. D. Herbelot's *Bibl. Orient.* and Mr Richardſon's Introduction to his *Perſian and Arabic Dictionary*.

(23.) The mythology of the CHALDEANS commences at a period myriads of years prior to the era of the Moſaic creation. Their coſmogony, exhibited by BEROSUS, prieſt of Belus, deeply verſed in the antiquities of his country, is a moſt extravagant piece of mythology. It has been copied by Euſebius (Chron. l. i. p. 5.); as well as by Syncellus, from Alexander Polyhiſtor. According to this hiſtorian, there were at Babylon written records preſerved with the greateſt care, comprehending a period of fifteen myriads of years. Thoſe writings likewiſe contained a hiſtory of the heavens, earth, and ſea, and of the origin of mankind. "In the beginning (ſays Beroſus, copying from Oannes), there was nothing but darkneſs and an abyſs of water, wherein reſided moſt hideous beings produced from a twofold principle. Men appeared with two wings; ſome with two and ſome with four faces. They had one body, but two heads; the one of a man, the other of a woman. Other human figures were furniſhed with the legs and horns of goats. Some had the feet of horſes behind, but before were faſhioned like men, reſembling hippocentaurs." The remaining part of this mythology is much of the ſame complexion; indeed ſo extravagant, that we ſuppoſe our readers will diſpenſe with the ſequel. "Of all theſe (ſays the author) were preſerved delineations in the temple of Belus at Babylon. The perſon who was ſuppoſed to preſide over them was called OMOREA. This word, in the Chaldean language, is THALATH, which the Greeks call θαλασσα, but it properly imports the moon. Matters being in this ſituation, *their* god (ſays Euſebius) came and cut the woman

(34.) By comparing this fragment with the mythology of the Atlantidæ, and that of the Cretans preſerved by Diodorus the Sicilian, (lib. v.) there is reaſon to conclude, that the family of the Titans, the ſeveral branches of which ſeem to have been both the authors and objects of a great part of the Grecian idolatry, originally emigrated from Phœnicia. Almoſt all their names, in the fabulous records of Greece, may be eaſily traced up to a Phœnician original. We agree with Herodotus, that a conſiderable part of the idolatry of Greece may have been borrowed from the Egyptians; but it is highly probable, that the idolatry of the Egyptians and Phœnicians were, in their original conſtitution, nearly the ſame. Both ſyſtems were *Sabiiſm*, or the worſhip of the hoſt of heaven.

(35.) The adventures of Jupiter, Juno, Mercury, Apollo, Diana, Mars, Minerva, Venus, Bacchus, Ceres, Proſerpine, Pluto, Neptune, and the other deſcendants of the ambitious family of the Titans, furniſh the greateſt part of the mythology of GREECE. They left Phœnicia about the age of Moſes; they ſettled in Crete, whence they made their way into Greece, which was then inhabited by ſavages. The arts and inventions which they communicated to the natives; the myſteries of religion which they inculcated; the laws, cuſtoms, polity, and good order, which they eſtabliſhed; in ſhort, the bleſſings of humanity and civilization, which they everywhere diſſeminated, in proceſs of time inſpired the unpoliſhed inhabitants with a kind of religious admiration. Thoſe ambitious mortals improved this admiration into divine homage. The greater part of that worſhip, which had been formerly addreſſed to the luminaries of heaven, was now transferred to thoſe illuſtrious perſonages. They claimed and obtained divine honours from the deluded rabble of enthuſiaſtic Greeks. Hence ſprung an inexhauſtible fund of the moſt inconſiſtent fictions.

(36.) The foibles and frailties of the deified mortals were tranſmitted to poſterity, incorporated with the pompous attributes of divinity. Hence the heterogeneous mixture of the mighty and the mean which chequers the characters of the gods and heroes of the Iliad and Odyſſey. The Greeks adopted the oriental fables; the import of which they did not underſtand. Theſe they accommodated to heroes and illuſtrious perſonages, who had figured in their own country in the earlieſt periods. The labours of Hercules originated in Egypt, and relate to the annual progreſs of the ſun in the zodiac; but the vain-glorious Greeks accommodated them to a hero of their own, the reputed ſon of Jupiter and Alcmena. The expedition of Oſiris they borrowed from the Egyptians, and transferred to their Bacchus, the ſon of Jupiter and Semele the daughter of Cadmus. The transformation and wanderings of Io ſeem evidently tranſcribed from the Egptian romance of the travels of Iſis in queſt of the body of Oſiris, or of the Phœnician Aſtarte, drawn from Sanchoniathon. *Io* or *Ioh* is in reality the Egyptian name of the moon, and Aſtarte was the name of the ſame planet among the Phœnicians. (See ASHTAROTH.) Both theſe fables are allegorical repreſentations of the anomalies of that planet. The fable of the conflagration occaſioned by Phaethon is clearly of oriental extraction, and alludes to an exceſſive drought, which anciently ſcorched Ethiopia and the adjacent countries. The adventures of PERSEUS are ſaid to have happened in the ſame regions, and are allegorical repreſentations of the influence of the ſolar luminary; for the original Perſeus was the ſun. The rape of Proſerpine and the wanderings of Ceres; the Eleuſinian myſteries; the orgia of Bacchus; the rites and worſhip of the Cabiri, were imported from Egypt and Phœnicia; but ſtrangely garbled and disfigured by the Hierophants of Greece. The *gigantomachia*, or war between the gods and the giants, and all the fabulous events of that war, form a counterpart to the battles of the Peri and Dives, celebrated in the romantic annals of Perſia.

(37.) A conſiderable part of the mythology of the Greeks ſprung from their ignorance of the oriental languages. They diſdained to ſtudy the languages ſpoken by people whom, in their pride, they ſtyled *barbarians*. This averſion to every foreign dialect was highly detrimental to their progreſs in the ſciences. The ſame neglect or averſion has proved an irreparable injury to the republic of letters in all ages. The *Aoids*, or ſtrolling bards, laid hold on thoſe oriental legends, which they ſophiſticated with their own additions, to accommodate them to the popular taſte. Theſe wonderful tales figured in their rhapſodical compoſitions, and were greedily ſwallowed by the credulous vulgar. Thoſe fictions were conſtantly augmented with freſh materials, till in time their original import was either forgotten or buried in impenetrable darkneſs. A multitude of theſe Heſiod has collected in his *Theogonia*, or generation of the gods, which unhappily became the religious creed of the illiterate part of the Greeks.

(38.) The far-famed oracle of Dodona was copied from that of Ammon of Thebes in Egypt: The oracle of Apollo at Delphos was an emanation from the ſame ſource; (ſee DELPHI, § 2, 3.) The celebrated Apollo Pythius of the Greeks was no other than OB or *Aub* of the Egyptians, who denominated the baſiliſk or royal ſnake *Or Cai*, becauſe it was held ſacred to the ſun. *Ob* or *Aub* is ſtill retained in the Coptic dialect, and is one of the many names or epithets of that luminary. In ſhort, the ground-work of the Grecian mythology is to be traced in the eaſt. Only a ſmall part of it was fabricated in the country; and what was imported pure and genuine was miſerably ſophiſticated by the hands through which it paſſed, to accommodate it to the Grecian taſte.

(39.) The ROMAN MYTHOLOGY was borrowed from the Greeks. That people had addicted themſelves for many centuries to war and civil polity. Science and philoſophy were either neglected or unknown. At laſt they conquered Greece, the native land of ſcience, and then "*Græcia capta ferum victorem cepit arte, et intulit agreſti Latio.*" This being the caſe, their mythology was, upon the whole, a tranſcript from that of Greece. They had indeed previouſly gleaned a few fables from the Pelaſgi and Hetruſcans, (40.) The mythology of the CELTIC nations is in a great meaſuee loſt. There may ſtill remain ſome veſtiges of the Druidical ſuperſtitions in the remoteſt parts of the Highlands and Iſlands of Scotland; and in the uncivilized places of Ireland. Theſe, we preſume, would afford little entertainment, and leſs inſtruction. We ſhall, therefore, refer our readers to Oſſian's Poems, and Col. Valency's Collections of Iriſh Antiquities, for ſatisfaction on that ſubject.

(41.) The mythology of the NORWEGIANS, DANES, SWEDES, ICELANDERS, &c. are uncommonly curious and entertaining. The EDDA and VOLUSPA contain a complete collection of fables which have not the ſmalleſt affinity with thoſe of the Greeks and Romans. They are wholly of an oriental complexion, and ſeem almoſt congenial with the tales of the Perſians. The Edda was compiled in Iceland in the 13th century. It is a kind of ſyſtem of the Scandinavian mythology; and has been reckoned a commentary on the Voluſpa, which was the Bible of the northern nations. ODIN, OTHIN, WODEN or WODAN, was the ſupreme divinity of thoſe people. His exploits and adventures furniſh the far greateſt part of their mythological creed. That hero is ſuppoſed to have emigrated from the eaſt; but from what country or at what period is not known. His achievements are magnified beyond all credibility. He is repreſented as the god of battles, and as ſlaughtering thouſands at a blow. His palace is called *Valhal*: it is ſituated in the city of Midgard, where, according to the fable, the ſouls of heroes who had bravely fallen in battle enjoy ſupreme felicity. They ſpend the day in mimic hunting-matches, or imaginary combats. At night they aſſemble in the palace of Valhalla, where they feaſt on the moſt delicious viands, dreſſed and ſerved up by the VALKYRIÆ, virgins adorned with celeſtial charms, and fluſhed with the bloom of everlaſting youth. They ſolace themſelves with drinking mead out of the ſkulls of enemies whom they killed in their days of nature. Mead was the *nectar* of the Scandinavian heroes.

(42.) SLEEPNER, the horſe of Odin, is celebrated along with his maſter. *Hela*, the hell of the Scandinavians, affords a variety of fables equally ſhocking and heterogeneous. *Loke*, the evil genius or devil of the northern people, nearly reſembles the Typhon of the Egyptians. SIGNA or SINNA is the conſort of Loke; from which name the Engliſh word *ſin* is derived. The giants Weymur, Ferbanter, Belupher, and Hellunda, perform a variety of exploits, and are exhibited in the moſt frightful attitudes. They perform the counterpart of the giants of the Greek and Roman mythologiſts. Without enlarging on theſe ridiculous and unintereſting fables, we ſhall give a brief account of the contents of Voluſpa, which is indeed the text of the Scandinavian mythology.

(43.) The word VOLUSPA imports, *the prophecy of Vola* or *Fola*. This was perhaps a general name for the prophetic ladies of the north, as *Sybil* was appropriated to women endowed with the like faculty in the ſouth. Certain it is, that the ancients generally connected madneſs with the prophetic faculty. Of this we have two celebrated examples: the one in Lycophron's Alexandria, and the other in the Sybil of the Roman Poet. The word *vola* ſignifies *mad* or fooliſh; whence the Engliſh words *fool, fooliſh, folly*. *Spa* ſignifies *to prophecy*, and is ſtill current in Scotland in the word *Spæ*, which has the ſame ſignification. The Voluſpa conſiſts of between 200 and 300 lines. The propheteſs having impoſed ſilence on all intelligent beings, declares that ſhe is about to reveal the works of the father of nature, the actions and operations of the gods, which no mortal ever knew before herſelf. She then begins with a deſcription of the chaos; and then proceeds to the formation of the world, the creation of the different ſpecies of its inhabitants, giants, men, and dwarfs. She then explains the employments of the fairies or deſtinies, whom the northern people call *nornies*; the functions of the deities, their moſt memorable adventures, their diſputes with Loke, and the vengeance that enſued. She at laſt concludes with a long and animated deſcription of the final ſtate of the univerſe, and its diſſolution by a general conflagration.

(44.) In this cataſtrophe, Odin, and all the rabble of the pagan divinities, are to be confounded in the general ruin, no more to appear on the ſtage of the univerſe. Out of the ruins of the former world, according to the Voluſpa, a new one ſhall ſpring up, arrayed in all the bloom of celeſtial beauty. Such is the doctrine exhibited in the fabulous Voluſpa. So congenial are ſome of the details therein delivered, eſpecially their relating to the final diſſolution of the preſent ſyſtem, and the ſucceſſion of a new heaven and a new earth, that we ſuſpect, that the original fabricator of the work was a ſemipagan writer, much of the ſame complexion with the authors of the Sybiline oracles, and of ſome other apocryphal pieces which appeared in the world during the firſt ages of Chriſtianity.

(45.) In AMERICA, the only mythological countries were Mexico and Peru. The other parts of that large continent were originally inhabited by ſavages, moſt of them as remote from religion as from civilization. The two vaſt empires of Mexico and Peru had exiſted about 400 years only before the Spaniſh invaſion. In neither of them was the uſe of letters underſtood: and of courſe the ancient opinions of the natives relating to the origin of the univerſe, the changes which ſucceeded, and every other monument of antiquity, were obliterated and loſt. Clavigero has indeed enumerated a vaſt canaille of ſanguinary gods worſhipped by the Mexicans; but produces nothing either entertaining or intereſting with reſpect to their mythology. The information to be derived from any other quarter is little to be depended upon. It paſſes through the hands of bigoted miſſionaries or other eccleſiaſtics, who were ſo deeply tinctured with fanaticiſm, that they viewed every action, every ſentiment, every cuſtom, every religious opinion and ceremony of thoſe half-civilized people, through a falſe medium. They often imagined they diſcovered reſemblances and analogies between the rites of thoſe ſavages and the dogmas of Chriſtianity, which no where exiſted but in their own heated imagination.

(46.) The only remarkable piece of mythology in the annals of the Peruvians, is the pretended extraction of Manco Cape, the firſt Inca of Peru, and of Mama Ocolla his conſort. Theſe two illuſtrious perſonages appeared firſt on the banks of the lake Titiaca. They were perſons of a majeſtic ſtature, and clothed in decent garments. They declared themſelves to be the children of the Sun, ſent by their beneficent parent, who beheld with pity the miſeries of the human race, to inſtruct and to reclaim them. Thus we find theſe two legiſlators availed themſelves of a pretence which had often been employed in more civilized regions to the very ſame purpoſes. The idolatry of Peru was gentle and beneficent, that of Mexico gloomy and ſanguinary. Hence we may ſee, that every mode of ſuperſtition, where a divine revelation is not concerned, borrows its complexion from the characters of its profeſſors.

(47.) In this article, for which we are chiefly indebted to Dr Doig of Stirling, we have not much enlarged upon the mythology of the Greeks and Romans; that ſubject being ſo univerſally known by the learned, and ſo little valued by the vulgar, that a minute diſcuſſion of it would be ſuperfluous; more eſpecially as it is ſufficiently noticed in this work, under the reſpective names of the numerous gods, demigods, and heroes, who were celebrated in the ancient Grecian and Roman mythology. See Jupiter, Apollo, Hercules, Mars, &c. in their order.

MYTHRAS. See Mithras and Mysteries.

MYTILUS, the Mussel, in ichthyology; a genus of animals, belonging to the order of vermes teſtacea. The animal is an aſcidia: the ſhell bivalve; often affixed to ſome ſubſtance by a beard; the hinge without a tooth, marked by a longitudinal hollow line. Of theſe animals there are about 60 ſpecies, ſome of them inhabiting the ſeas, others the rivers and ponds. Several of them are remarkable for the beauty of their internal ſhell, and for the pearls which are ſometimes found in them.

1. Mytilus Anatinus, the *duck muſſel*, has a ſhell more oblong and leſs convex than the *ſwan*; (N° 3.) is very brittle and ſemitranſparent; the ſpace round the hinges like the ſwan; the length about 5 inches, breadth 2. It is found in Europe in freſh waters. Both it and the ſwan are devoured by ſwans and ducks; whence their names: crows alſo feed on theſe muſſels, as well as on different other ſhell fiſh; and when the ſhell is too hard for their bills, they fly with it to a great height, drop the ſhell on a rock, and pick out the meat when the ſhell is fractured by the fall.

2. Mytilus Cristagalli, the cock's-comb muſſel, has the ſhell folded or plaited as it were, ſpiny, and both lips rugged. It makes its abode in the coral beds of the Indian ocean.

3. Mytilus Cygneus, the *ſwan muſſel*, with a thin brittle ſhell, very broad and convex, marked with concentric ſtriæ; attenuated towards one end, dilated towards the other; decorticated about the hinge; the colour a dull green; the length ſix inches, breadth three and a half. It is an inhabitant of the European rivers, frequenting chiefly their mouths. Freſh water muſſels are not ſo good eating as the ſea muſſel. The river muſſel, according to M. Poupart, ſwims in the water, and ſometimes appear to flutter on its ſurface. But we believe it more commonly creeps in the mud, where it remains almoſt always at reſt. The pond muſſel is always larger than that which is found in rivers; and it is a more ſolitary animal. In its motion it makes tracks in the ſand and mud, and it penetrates into it two or three inches, and ſometimes more. Pearls of conſiderable beauty are found in ſeveral river muſſels; of this kind are the Scots muſſels, thoſe of Valognes in Lorrain, of St Savinier of Bavaria, and of the marſhes near Augſburg.

4. Mytilus Edulis, the edible mussel, has a ſtrong ſhell, ſlightly incurvated on one ſide, and angulated on the other. The end near the hinge is pointed; the other rounded. When the epidermis is taken off, it is of a deep blue colour. It is found in immenſe beds, both in deep water and above low-water mark. The fineſt muſſels in Britain are thoſe called *Hambleton hookers*, from a village called *Hambleton*. They are taken out of the ſea, and placed in the river Wier, within reach of the tide, where they grow very fat and delicious. This ſpecies inhabits the European and Indian ſeas. Between the tropics it is largeſt, and ſmalleſt within the polar circle. This ſpecies has, from its being for the moſt part faſtened to the rocks, been ſuppoſed by many wholly incapable of progreſſive motion; but this M. Reaumur has ſhown to be an erroneous opinion. It is a common practice in France, at ſuch ſeaſons of the year as do not afford ſun enough to make ſalt, to throw the common ſea muſſels, which the fiſhermen catch about the coaſts, into the brine pits to render their fleſh more tender and delicate, as the rain which falls at theſe ſeaſons makes the water of the pits much leſs ſalt than the ſea water. The muſſels are on this occaſion thrown careleſsly in, in ſeveral different parts of the pits; yet, at whatever diſtances they have been thrown in, the fiſhermen, when they go to take them out, always find them in a cluſter together; and as there is no current of water in theſe places, nor any other power of motion which can have brought the muſſels together, it is evident that they muſt voluntarily have marched from the places where they were at firſt, to have met thus together. This progreſſive motion is performed by means of what we call the *tongue* of the muſſel, from its ſhape; but, from its uſe in this caſe, it appears rather to merit the name of a *leg*, or an *arm*, as by laying hold of any diſtant ſubſtance, and then forcibly contracting itſelf again, it draws along the whole body of the animal. The ſame part, which has moved the animal to a proper place, ſerves alſo to fix it there, being the organ by which it ſpins the threads which we call its *beard*, by which

it is held to a rock, or to another muſſel. The motion of the muſſel, by means of this part, is juſt the ſame with that of a man laid flat on his belly, who would draw himſelf along by laying hold of any thing with one hand, and then drawing himſelf to it. Muſſels not only open and ſhut their ſhells at pleaſure, but they reſpire water like fiſhes; and ſome even flutter about on its ſurface to inhale air. If they lie in ſhallow places, a ſmall circular motion is ſeen above the heel of the ſhell; and a few moments after, they caſt out the water by one ſingle ſtroke at the other end of the ſhell. The mouth is ſituated near the ſharp angle of the animal, and is furniſhed with four floating fringes in the ſhape of muſtachios, which perhaps anſwer the purpoſe of lips. The barbs which ſurround the edge of almoſt half the muſſel, are a wonderful web of hollow fibres which ſerve as fins or organs of reſpiration, as veſſels for the circulation of the fluids, and, probably, as wedges for opening their ſhells; for we obſerve two large muſſels or tendons for the purpoſe of ſhutting them; but we in vain look for their antagoniſts, or thoſe which are deſtined to open them. When the muſſel wiſhes to open itſelf, it relaxes the two muſſels or tendons, and ſwells the fringes, which act as wedges and ſeparate the ſhells. The animal ſhuts up itſelf by the contraction of two thick fibrous muſcles which are fixed internally to each end of the ſhells; and theſe ſhells are lined all around with a membrane or epidermis, which unites them ſo cloſely together when they are ſoaked in water, that not the ſmalleſt drop can eſcape from the muſcle. When muſſels chooſe to walk, they often contrive to raiſe themſelves on the ſharp edge of their ſhells, and put forth a fleſhy ſubſtance ſuſceptible of extenſion, which ſerves them as a leg to drag themſelves along, in a kind of groove or furrow which they form in the ſand or mud, and which ſupports the ſhell on both ſides. In ponds, theſe furrows are very obſervable. From the ſame member or leg hang the threads by which the animals faſten themſelves to rocks. Muſſels are well known to have a power of faſtening themſelves either to ſtones, or to one another's ſhells, in a very firm manner; but the method of doing this was not well underſtood till Mr Reaumur explained it. Every one who opens and examines a common muſſel, will find, that in the middle of the fiſh there is placed a little blackiſh or browniſh body reſembling a tongue. This in large muſſels is near half an inch long, and a little more than a ſixth of an inch in breadth, and is narrower at the origin than at the extremity: from the root of this tongue, or that part of it which is faſtened to the body of the fiſh, there are produced a great number of threads, which, when fixed to any ſolid ſubſtance, hold the muſſel firmly in its place: theſe threads are uſually from an inch to two inches in length, and in thickneſs from that of a hair to that of a hog's briſtle. They iſſue out of the ſhell in that part where it naturally opens, and fix themſelves to any thing that lies in their way, to ſtones, to fragments of ſhells, or, which is the moſt common caſe, to the ſhells of other muſſels; whence it happens that there are uſually ſuch large quantities of muſſels found together. Theſe threads are expanded on every ſide, and are uſually very numerous, 150 having been found iſſuing from one ſhell: they ſerve the office of ſo many cables; and, each pulling in its proper direction, they keep the muſſel fixed againſt any force that can be offered from whatever part it come. The filaments are well known to all who eat muſſels, who ever carefully ſeparate them under the name of the *beard;* and Mr Reaumur has found, that while the animal is living in the ſea, if they are all torn away by any accident, the creature has a power of ſubſtituting others in their room: he found, that if a quantity of muſſels were detached from one another, and put into a veſſel of any kind, and in that plunged into the ſea, they in a little time faſtened themſelves both to the ſides of the veſſel and to one another's ſhells; the extremity of each thread ſeemed in this caſe to ſerve in the manner of a hand to ſeize upon any thing that it would fix to, and the other part, which was ſlenderer and ſmaller, to do the office of conducting it. To know the manner of the muſſels performing this operation, Mr Reaumur put ſome muſſels into a veſſel in his chamber, and covered them with ſea water; he there ſaw that they ſoon began to open their ſhells, and each put forth its arm or tongue, at the root of which theſe threads grow; they extended and ſhortened this part ſeveral times, and thruſt it out every way, often giving it not leſs than two inches in length, and trying before, behind, and on every ſide with it, what were the proper places to fix their threads at: at the end of theſe trials they let it remain fixed for ſome time on the ſpot which they choſe for that purpoſe, and then drawing it back into the ſhell with great quickneſs, it was eaſy to ſee that they were then faſtened by one of theſe threads to the ſpot where it had before touched and remained fixed for a few minutes; and in repeating this workmanſhip the threads are increaſed in number one at every time, and being fixed in different places, they ſuſtain the fiſh at reſt againſt any common force. The ſeveral threads were found to be very different from one another; the new formed ones being ever whiter, more gloſſy, and more tranſparent than the others; and it appeared on a cloſe examination, that it was not the office of the tongue to convey the old threads one by one to the new places where they were now to be fixed, but that theſe in reality were now become uſeleſs; and that every thread we ſee now formed, is a new one made at this time; and in fine, that nature has given to ſome ſea fiſhes, as well as to many land inſects, a power of ſpinning thoſe threads for their neceſſary uſes; and that muſſels and the like fiſh are under water, what caterpillars and ſpiders are at land. To be well aſſured of this, M. Reaumur cut off the beard or old threads of a muſſel as cloſe as he could, without injuring the part; and he found that thoſe, whoſe beards or old threads were cut off, fixed themſelves as ſoon as thoſe in which they were left, and ſpread their threads to as great a diſtance every way. When the mechaniſm of this manufacture was thus far underſtood, it became a natural deſire to inquire into the nature of the part by which it was performed. This tongue, or arm of the fiſh, whenever it happens to be looſened, or fixed in a wrong place, it ſerves the animal to drag its whole body, ſhell and all along, and to perform its ſeveral motions. It fixes itſelf to ſome ſolid body; and then ſtrongly contracting its length, the whole fiſh muſt neceſſarily follow it, and be pulled toward the place where it is fixed. This is an uſe, however, that this part is rarely put to; its chief employment being to ſpin the threads. Though this body is flat, like a tongue, for the greater part of its length, it is rounded or cylindric about the baſe or inſertion, and is much ſmaller there than in any other part: there are ſeveral muſcular ligaments faſtened to it about the root or baſe, which hold it firmly againſt the middle of the back of the ſhell; of theſe ligaments there are four which are particularly obſervable, and which ſerve to move the body in any direction. There runs all along this body a ſlit or crack, which pierces very deeply into its ſubſtance, and divides it as it were into two longitudinal ſections; this is properly a canal, and along this is thrown the liquor which ſerves to form the threads; and it is in this canal or ſlit that theſe threads are moulded into their form. Externally, this appears only a ſmall crack or ſlit, becauſe the two fleſhy ſections of the parts almoſt meet and cover it; but it is rounded and deep within, and is ſurrounded with circular fibres. This canal is carried regularly on from the tip of the tongue to its baſe, where it becomes cylindric; the cylinder in this part being no other than a cloſe tube or pipe, in which this open canal terminates. The cylindric tube contains a round oblong body, of the nature of the threads, except that it is much larger; and from the extremity of this all the threads are produced, this ſerving as a great cable to which all the other little cordages diſperſed towards different parts are fixed. The tube or pipe in which this large thread is lodged, ſeems the reſervoir of the liquor of which the other threads are formed; all its internal ſurface being furniſhed with glands for its ſecretion. The muſſel, like many other ſea fiſhes, abounds in this liquor; and if at any time one touch with a finger the baſe of this ſpinning organ, one draws away with it a viſcous liquor in form of ſeveral threads, like thoſe of the caterpillar, ſpider, and the other ſpinning land animals. The threads fix themſelves with equal eaſe to the moſt ſmooth and gloſſy, as to rougher bodies; if the muſſels are kept in glaſs jars of ſea water, they as firmly faſten themſelves to the glaſs as to any other body. Muſſels, be they ever ſo young, have this property of ſpinning; and by this they faſten themſelves in vaſt numbers to any thing which they find in the ſea. Mr Reaumur has ſeen them, when as ſmall as millet-ſeeds, ſpin plentifully, though their threads, proportioned to their own weight, are much finer and ſmaller than thoſe of larger muſſels. According to the obſervations of M. Mery of the Paris Academy, and the ſubſequent experiments of other naturaliſts, muſſels are all androgynous; and, from a peculiar generative organization, each individual is of itſelf capable of propagating its ſpecies, and annually does it without the intercourſe of any other. This is altogether ſingular, and different from what takes place in ſnails, earth worms, and other hydrogenous or hermaphroditical animals; for, though each individual of theſe contain the parts of both ſexes, yet there is always a congreſs of two animals for the propagation of the ſpecies. The parts of generation are two ovaries and two ſeminal veſicles. Each ovary and veſicle has its proper duct. Through theſe 4 channels the eggs and the ſeed of the muſſel are conveyed to the anus, where thoſe two principles unite at their iſſue, which anſwers the purpoſe of generation. It is in the ſpring that muſſels lay their eggs; there being none found in them but in winter. M. Lewenhock, in ſeveral muſſels which he diſſected, diſcovered numbers of eggs, or embryo muſſels, in the ovarium, appearing as plainly as if he had ſeen them by the naked eye, and all lying with their ſharp ends faſtened to the ſtring of veſſels by which they receive nouriſhment. The minute eggs or embryos are by the parent placed in due order, and in a very cloſe arrangement on the outſide of the ſhell, where, by means of a gluey matter, they adhere very faſt, and continually increaſe in ſize and ſtrength, till, becoming perfect muſſels, they fall off and ſhift for themſelves, leaving the holes where they were placed behind them. This abundance the muſſel ſhells very plainly ſhow, when examined by the microſcope, and ſometimes the number is 2000 or 3000 in one ſhell: but it is not certain that theſe have been all fixed there by the muſſel within; for theſe fiſh uſually lying in great numbers near one another, the embryos of one are often affixed to the ſhell of another. The fringed edge of the muſſel, which Lewenhoek calls the *beard*, has in every the minuteſt part of it ſuch variety of motions as is inconceivable; for being compoſed of longiſh fibres, each fibre has on both ſides a vaſt number of moving particles. The muſſel is infeſted by ſeveral enemies in its own element; according to Reaumur it is in particular the prey of a ſmall ſhell fiſh of the trochus kind. This animal attaches itſelf to the ſhell of the muſſel, pierces it with a round hole, and introduces a ſort of tube five or ſix inches long, which it turns in a ſpiral direction, and with which it ſucks the ſubſtance of the muſſel. Muſſels are alſo ſubject to certain diſeaſes, which have been ſuppoſed to be the cauſe of thoſe bad effects which ſometimes happen from eating them. Theſe are ſtated by Dr Mœhring, in the 7th volume of the *German Ephemerides*, to be the moſs and the ſcab. The roots of the moſs being introduced into the ſhell, the water penetrates through the openings, and gradually diſſolves the muſſel. The ſcab is formed by a ſort of tubercles which are produced by the diſſolution of the ſhell. Certain ſmall crabs, which are ſometimes found in muſſels, likewiſe tend to make them unwholeſome. —The eating of muſſels has ſometimes produced eryſipelatous inflammations, cutaneous eruptions, inſupportable itching all over the body, great reſtleſſneſs and agitation; and though theſe complaints are eaſily removed by oil, milk, and emetics, and have ſeldom or never proved mortal, yet they have an alarming aſpect, and make the patient ſuffer grievouſly. Some authors pretend, that theſe effects never take place but between the vernal and autumnal equinox; and Dr Beaunie, of Autwerp, in a memoir on this ſubject, ſeems inclined to adopt this opinion; for he recommends abſtinence from muſſels during May, June, July, and Auguſt. The cauſe of theſe noxious effects is, he ſays, altogether accidental. They are occaſioned by a ſpecies of *ſtella marina*, a little ſea inſect pretty common about the mouth of the Scheldt, which ſometimes lodges itſelf in the muſſel in queſt of food; and whoſe ſpawn is ſo cauſtic and inflammatory, that, even when applied outwardly to the ſkin, it produces itchings and ſwellings that are painful in a high degree. The itching occaſioned is removed by vinegar; and this induced Dr Beunie to preſcribe the internal uſe of vinegar, after bleeding, evacuations, and emetics. He recommends a large quantity of refreſhing beverage, and, every hour, 3 oz. of vinegar diluted in water. This remedy, however, ſeems rather to confirm the opinion of thoſe who impute the diſorder in queſtion to an unperceived commencement of putrefaction in the muſſel; as vinegar is known to be a powerful antiſeptic, and there is no ſort of putrefaction more noxious and offenſive than that of fiſh.—Upon the whole, the eatable muſſel, though a rich food, is difficult of digeſtion. In its beſt ſtate it is noxious to ſome conſtitutions; and when affected by diſeaſe is in ſome degree poiſonous. Muſſels are apt to do moſt harm when eaten raw. They ought always to be boiled with onions, well waſhed with vinegar, and ſeaſoned with pepper; and even thus qualified, they ſhould not be eaten to exceſs, or too frequently.

5. **Mytilus Lithophagus**, the *ſtone-eater*, has the ſhell cylindric, the extremities both ways being rounded. It inhabits the Indian, European, and Mediterranean ſeas, penetrating and eating away marbles, corals, &c. The Indian ſhell is ſofter and nearly tough like leather, but the European is more brittle. It works its way into the chalk-ſtone, by a kind of ſaw at its head. It is defended from all enemies by prickly ſcales. In Italy it is prized as a great delicacy, the taſte reſembling an oyſter, but with a far ſuperior flavour. It is mentioned in Smith's Tour. The columns of the temple of Jupiter Serapis, at Puzzoli, are perforated by this ſpecies. One of them was diſcovered in England in the centre of a chalk-ſtone, in Auguſt 1801.

6. **Mytilus Margaritiferus**, the pearl-bearing muſſel, has the ſhell compreſſed and flat, nearly orbicular, the baſe tranſverſe, and imbricated with dentated coats. It dwells in the ocean of either India. This is the *mater perlarum* of Rumphius, or mother-of-pearl ſhell. On the inſide it is exquiſitely poliſhed, and of the whiteneſs and water of pearl itſelf. It has alſo the ſame luſtre on the outſide after the external laminæ have been taken off by aquafortis and the lapidary's mill. *Mother-of-pearl* is uſed in inlaid works, and in ſeveral toys, as ſnuff-boxes, &c.

7. **Mytilus Modiolus**, the *great muſſel*, with a ſtrong ſhell, blunted at the upper end, one ſide angulated near the middle, from thence dilating towards the end, which is rounded. It dwells in the Mediterranean, Indian, European, and American ſeas; and its fleſh, which is a deep orange colour, is eatable. It is the greateſt of the muſſels known in Britain, being from 6 to 7 inches in length; it lies at great depths, often ſeizes the baits of ground-lines, and is taken up with the hooks.

8. **Mytilus Violacea**, the violet muſſel, has the ſhell longitudinally furrowed, the rim very obtuſe, ſomewhat formed like the mytilus edulis, but conſiderably larger and more flattened, of a beautiful violet colour. Inhabits the ſouthern ocean.

MYTON, a town of Yorkſhire, between Borough-Bridge and Temmile hill, where the Swale forms a cataract in its conflux with the Ure.

MYTTOTON, a coarſe kind of food, uſed by the labouring people among the Greeks, and ſometimes among the Romans. It was made of garlic, onions, eggs, cheeſe, oil, and vinegar, and reckoned very wholeſome.

MYUS, in ancient geography, one of the 12 towns of Ionia; ſeated on the Mæander, at the diſtance of 30 ſtadia from the ſea. In Strabo's time it was incorporated with the Mileſians, on account of the paucity of its inhabitants, from its being formerly overwhelmed with water; for which reaſon the Ionians conſigned its ſuffrage and religious ceremonies to the people of Miletus. Artaxerxes allotted this town to Themiſtocles, to furniſh his table with meat; Magneſia was to ſupport him in bread, and Lampſacus in wine. The town now lies in ruins.

MYXINE, the HAG; a genus of inſects belonging to the order of vermes inteſtini. It hath a ſlender body, carinated beneath; mouth at the extremity cirrated; the two jaws pinnated; an adipoſe or rayleſs fin round the tail and under the belly. The only remarkable ſpecies is the

Myxine Glutinosa, about 8 inches long. It inhabits the ocean; enters the mouths of fiſh when on the hooks of lines that remain a tide under water, and totally devours the whole, except ſkin and bones. The Scarborough fiſhermen often take it in the robbed fiſh, on drawing up their lines. Linnæus attributes to it the property of turning water into glue. See *Pl.* CCXXXI. N° I.

MYXOLADIAN, in ancient muſic, the firſt ſpecies of the DIAPASON.

MYXON, in ichthyology, a fiſh of the mullet kind, called alſo *Bacchus*. See BACCHUS, N° II. and MUGIL.

NAA NAA

(1.) * N, A ſemivowel, has in Engliſh an invariable ſound; as, *no, name, net;* it is ſometimes after *m* almoſt loſt; as, *condemn, contemn*.

(2.) N is uſed, 1. as a letter; 2. as a numeral; and, 3. as an abbreviation. I. As a LETTER, N is the 14th in the Hebrew, and the 13th in Greek, Latin, Engliſh, and other modern alphabets. It is the 10th conſonant, and the 3d liquid. N is a naſal conſonant; its ſound is that of a *d*, paſſed through the noſe; ſo that when the noſe is ſtopped by a cold, or the like, it is uſual to pronounce *d* for *n*. The Abbe Dangeau obſerves, that in the French the *n* is frequently a mere naſal vowel, without any thing of the conſonant in it. He calls it the Sclavonic vowel. The Hebrews call it *nun*, which ſignifies child, as being ſuppoſed the offspring of *m*; partly on account of the reſemblance of ſound, and partly of the figure. Thus from the *m*, by omitting the laſt column, is formed *n*; and thus from the capital N, by omitting the firſt column, is formed the Greek minuſcle ν. Hence for *biennies*, &c. the Latins frequently uſe *bimus*, &c. and convert the Greek ν, at the end of a word, into *m*, as φαρμακον, *pharmacum*, &c. See M. In compoſition the Latins change *N* before *p*, *b*, and *m* into *m*, and frequently into *l* and *r*; as in *in-ludo*, *illudo*; *in-rigo*, *irrigo*, &c.; in which they agree with the Hebrews, who, in lieu of *nun*, frequently double the next conſonant; and the Greeks do the ſame; as when for *Manlius*, they write Μαλλος, &c. The Greeks alſo, before κ, γ, χ, ν, changed the ν into γ, in which they were followed by the ancient Romans; who, for *Angulus*, wrote *Aggulus*; for *anceps*, *agceps*, &c. The Latins retrench the *n* from Greek nouns ending in ων; as Λεων, *Leo*; Δρακων, *Draco*; on the contrary, the Greeks add it to the Latin ones ending in *o*; as Κατων, Νερων, *Cato*, *Nero*. II. As a NUMERAL, N was uſed among the ancients, for 900; according to Baronius,

N, quoque nongentos numero deſignat haberdos.

And when a line was ſtruck over it ($\overline{\text{N}}$), it implied 9000. III. As an ABBREVIATION; N. L. was uſed among the ancient lawyers for *non liquet*, i. e. the cauſe is not clear enough to paſs ſentence upon. N. or N° in commerce, &c. is uſed as an abbreviation of *numero*, number.

NAAMAN. [נעמן, *Heb.* i. e. *Fair.*] A brave Syrian general, of whoſe miraculous cure of a leproſy, by waſhing in the Jordan, upon the advice of Elijah, a very intereſting account is recorded in 2 Kings v. The Rabbies have a tradition, that it was Naaman who drew the bow at a venture, and killed Ahab. See 1 Kings, xxii. 34.

NAARDA, NEARDA, NEERDA, or NEHARDEA, in ancient geography, a town ſituated on the confines of Meſopotamia and Babylonia; populous, and with a rich and extenſive territory, not eaſily to be attacked by an enemy, being ſurrounded on all ſides by the Euphrates and ſtrong walls. (*Joſephus.*) In the lower age the Jews had a celebrated ſchool there.

NAARDEN, or NAERDEN. See NAERDEN.

(1.) NAAS, a borough and poſt town of Ireland in Kildare, Leinſter. It is the county town, alternately with Athy the aſſizes town. It has five fairs, and was anciently the reſidence of the kings of Leinſter; the name ſignifies *the place of elders*, for here the ſtates of that province aſſembled during the 6th, 7th, and 8th centuries, after the Naaſtelghan of Carmen had been anathematiſed by the Chriſtian clergy. On the arrival of the Engliſh it was fortified; many caſtles were erected, the ruins of which are partly viſible; and parliaments were held there. At the foot of the mount or rath are the ruins of a houſe founded in 1484, for hermits of the order of St Auguſtin. On the 24th of May 1798 this town was attacked by a large body of rebels, who were driven into a narrow lane, where they ſuſtained for a conſiderable time the fire of the Armagh militia and Sir W. W. Wynnes fencibles, before they were repulſed. They had 140 killed, beſides many taken priſoners. The king's troops loſt two officers and 30 men. It is 15 miles SW. of Dublin. Lon. 6. 50. W. Lat. 53. 10. N.

(2.) NAAS, a town of Sweden, in Dalecarlia.

NAB, a river of Germany, which riſes four miles W. of Wonfidel, in Franconia, near Bavaria, and falls into the Danube, four miles W. of Ratiſbon.

* *To* NAB. *v. a.* [*nappa*, Swediſh.] To catch unexpectedly; to ſeize without warning. A word ſeldom uſed but in low language.

NABAIOTH, or NEBAJOTH. See NABATENE.

(1.) NABAL, a town of Tunis, on the coaſt, ſuppoſed to have been the ancient NEAPOLIS. It has ſeveral relics of antiquity, and is famous for its potteries. It is 32 miles SSE. of Tunis.

(2.) NABAL. [נבל, Heb. *i. e.* a fool.] a rich Iſraelite of Carmel, whoſe churliſhneſs had nearly provoked David to extirpate his whole family, had not ABIGAIL's prudence pacified him.

NABALIA, an iſland of Egypt, in lake Tennis; three miles S. of Tennis.

NABATÆI, the people of NABATENE, deſcendants of Iſmael by Nebaioth (1 Maccabees, Diodorus Siculus), inhabiting a deſert and barren country; they lived by plundering their neighbours, according to Diodorus. Nabathæus the epithet.

NABATENE, or REGIO NABATAEORUM, according to Jerome, compriſed all the country lying between the Euphrates and the Red Sea, and thus contained Arabia Deſerta, with a part of the Petræa; ſo called from Nabaioth, the firſt born of Iſhmael. According to Diodorus, it was ſituated between Syria and Egypt.

NABEAU, or NABEE, LOCH. See LOCHNABEE.

NABIS, a tyrant of Sparta, who reigned about A. A. C. 204, and exceeded all other tyrants ſo far, that, in compariſon, DIONYSIUS and PHALARIS were *merciful*. He contrived an inſtrument of torture in the form of a ſtatue of a beautiful woman, whoſe rich dreſs concealed a number of iron ſpikes in her boſom and arms. When any one therefore oppoſed his demands, he would ſay, "If I have not talents enough to prevail with you, perhaps my woman Apega may perſuade you." The automaton ſtatue then appeared; which Nabis taking by the hand, led up to the perſon, who, being embraced by it, was thus tortured into compliance. To render his tyranny leſs unpopular, Nabis made an alliance with Flaminius the Roman general, and purſued with the moſt inveterate enmity the war againſt the Achæans. He beſieged Gythium, and defeated Philopœmen in a naval battle. His triumph was ſhort; Philopœmen ſoon repaired his loſſes, and Nabis was defeated, and killed as he attempted to fly, about A. A. C. 194.

(1.) NABLOUS, a province of Syria, anciently called SAMARIA.

(2.) NABLOUS, the capital of the above province, is ſituated near Sichem, on the ruins of the NEAPOLIS of the Greeks, and is the reſidence of a ſhaik, ſubordinate to the pacha of Damaſcus, from whom he farms the tribute of the province. It is 24 miles N. of Jeruſalem, and 90 SSW. of Damaſcus. See SAMARIA, N° 2.

NABLUM, or NEBEL, [Heb.] was an inſtrument of muſic among the Jews. It had ſtrings like the harp, and was played upon by both hands. Its form was that of a Greek Δ. (See *Pl.* CCXXXVII.) In the Septuagint and Vulgate, it is called *nablum*, *pſalterion*, *lyra*; and ſometimes *cithara*.

NABO, or NEBO, in mythology, a deity of the Babylonians, who poſſeſſed the next rank to Bel. It is mentioned by Iſaiah, ch. xlviii. Voſſius ſuppoſes that Nabo was the moon, and Bel the ſun; but Grotius thinks that Nabo was ſome celebrated prophet of the country, which opinion is confirmed by the etymology of the name, ſignifying, according to Jerom, "one that preſides over prophecy."

NABOB, properly NAVAB, the plural of *Naib*, a deputy. As uſed in Bengal, it is the ſame as NAZIM. It is a title alſo given to the wives and daughters of princes, as well as to the princes themſelves.

NABONADIUS. See BABYLONIA, § 1, 2; and BELSHAZZAR.

NABONASSAR, the firſt king of the Chaldeans or Babylonians; memorable for the Jewiſh æra which bears his name, which is generally fixed in 3257, beginning on Wed. Febr. 26th in the 3957th of the Julian period, A. A. C. 747. The Babylonians revolting from the Medes, who had overthrown the Aſſyrian monarchy, did, under Nabonaſſar, found a dominion, which was much increaſed under Nebuchadnezzar. It is probable that this Nabonaſſar is that Baladan in 2 Kings xx. 12. father of Merodach, who ſent ambaſſadors to Hezekiah. 2. Chron. xxxii. See BABYLONIA, § 1.

NABOPOLASSAR, king of Babylon; he joined with Aſtyages the Mede, to deſtroy the empire of Aſſyria; which having accompliſhed, they founded the two empires of the Medes, under Aſtyages, and the Chaldeans, under Nabopolaſſar, 627 B. C. See BABYLONIA, § 1.

NABOTH, an Iſraelite, who, in obedience to the divine command, refuſing to ſell or exchange his patrimonial vineyard to K. Ahab, was, by the wicked device of Q. Jezebel, falſely accuſed of treaſon and blaſphemy, condemned and executed; and his property confiſcated. This iniquity drew down the divine vengeance, in a moſt ſignal manner, on the whole royal houſe of Ahab. See AHAB.

NABUCHADNEZZAR, or } See BABYLON,
NABUCHODONOZOR, } § 1—4; BABYLONIA; § 1: and NEBUCHADNEZZAR.

* NACKER, or NAKER. *n. ſ.* [*concha margaritifera*, Lat.] A ſhell that contained a pearl.

NACSIVAN. See NATIVAN.

NADAB. See ABIHU.

NADDER, a town of England, in Dorſetſhire.

NADIN, a fort in the late Venetian Dalmatia. It was taken by the Turks in 1539, and retaken by the Venetians in 1684.

(1.) * NADIR. *n. ſ.* [Arabic.] The point under foot directly oppoſite to the zenith.—

As far as four bright ſigns comprize,
The diſtant zenith from the *nadir* lies. *Creech.*

(2.) NADIR, Schaw of Perſia. See INDIA, § 12. 13; KOULI KHAN, and PERSIA.

(3.) NADIR, in geography, a town of Egypt, on the W. branch of the Nile; 28 miles NNW. of Cairo.

NAEFELS, a town of Switzerland in the canton of Glaris. In 1388 a moſt unparralleled victory was obtained near this town by 350 troops of Glaris and 50 Schwitzers, over 15,000 Auſtrians, whom they compelled to retreat, after a terrible ſlaughter. A chapel, built on the ſpot, in memory of this heroic action, was rebuilt in 1779. It lies 4 miles N. of Glaris.

NÆNIA, the goddeſs of funerals at Rome. Her temple was without the gates of the city. The ſongs which were ſung at funerals were alſo called *nænia*. They were generally filled with the praiſes of the deceaſed; but ſometimes they were ſo unmeaning and improper, that the word became proverbial to ſignify nonſenſe.

NAERDEN, a ſtrong town of Holland, in the department of Amſtel, and late province of Holland, ſeated on the head of the canals. The foundations were laid by William of Bavaria in 1350. It was taken by the Spaniards in 1572, and by the French in 1672; but retaken by the prince of Orange in 1673. It ſtands at the S. end of the Zuyder Zee. Lon. 5. 3. E. Lat. 51. 22. N.

NAEROE, a narrow paſs of Norway. See NORWAY, § 11.

NÆVI. See NÆVUS.

(1.) NÆVIUS, a famous augur in the reign of Tarquin, who, to convince the king and the Romans of his preternatural power, cut a flint with a raſor, and turned the ridicule of the populace to admiration. Tarquin rewarded his merit by erecting him a ſtatue in the comitium, which was extant in the age of Auguſtus. The raſor and flint were buried near it under an altar, and it was uſual among the Romans to make witneſſes in civil cauſes ſwear near it. This miraculous event of cutting a flint with a raſor, though believed by ſome writers, is treated as fabulous by Cicero, who himſelf had been an augur.

(2.) NÆVIUS, Cneius, a famous poet of Campania, who was bred a ſoldier; but quitted arms for poetry, which he proſecuted with great diligence. He compoſed a hiſtory in verſe, and a great number of comedies: But it is ſaid that his firſt performance of this laſt kind ſo diſpleaſed Metellus, on account of the ſatyrical ſtrokes it contained, that he procured his being baniſhed from the city; on which he retired to Utica in Africa, where he died, A. A. C. 202. Some fragments of his works are extant.

(1.) NÆVUS, a mole on the ſkin, generally called *Nævus Maternus*, or *mother's mark*. All preternatural tumours on the ſkin, in the form of a wart or tubercle, are called *excreſcences*; by the Greeks they are called *acrothymia*; and when they are born with a perſon, they are called *nævi materni*, or *marks from the mother*. A large tumour depending from the ſkin is denominated *ſarcoma*. Theſe appear on any part of the body: ſome of them differ not in their colour from the reſt of the ſkin; whilſt others are red, black, &c. Their ſhapes are various; ſome reſembling ſtrawberries, others grapes, &c. Heiſter adviſes their removal by means of a ligature, a cautery, or a knife, as circumſtances beſt ſuit.

(2.) Nævus alſo ſignifies a Wen. The different ſpecies are diſtinguiſhed by their contents. They are encyſted tumours; the matter contained in the firſt 3 following is inſpiſſated lymph, and that in the 4th is only fat. M. Littre was the firſt who particularly deſcribed the 4th kind. He diſtinguiſhes them as follows: Wens are of 3 ſorts, according to the kind of matter contained; that whoſe contents reſemble boiled rice, or curds, or a bread poultice, is called atheroma; if it reſembles honey, it is named meliceris; and if it is like ſuet, it is denominated steatoma: but there is a 4th ſort, which may be called *lipome*, becauſe of its fat contents reſembling greaſe. He ſays that he has ſeen one on the ſhoulder of a man, which was a thin bag, of a tender texture, full of a ſoft fat, and that it had all the qualities of common greaſe. And though the fat in the lipome reſembles that in the ſteatoma, yet they cannot be the ſame: for the matter of the ſteatoma is not inflammable, nor does it melt; or if it does, it is with great difficulty and imperfectly; whereas it is the contrary with the lipome. When the man who had the above-named lipome was fatigued, or had drank freely of ſtrong liquors, his lipome was inflamed for ſome days after, and its contents rarefying increaſed the ſize of the tumour. The lipome ſeems to be an enlargement of one or more of the cells of the adipoſe membrane, which is filled only with its natural contents. Its ſoftneſs and largeneſs diſtinguiſh it in general from the other ſpecies, though ſometimes the fatty contents will be ſo hard as to deceive. As this kind of wen does not run between the muſcles, nor is poſſeſſed of any conſiderable blood-veſſels, it may always be cut off with eaſe and ſafety. As to the other kinds of wens, their extirpation may or may not be attempted, according to their ſituation with reſpect to adjacent veſſels, the wounding of which would endanger the patient's life.

(1.) * NAFF. *n. ſ.* [*mergus cirrbatus.*] A kind of tufted ſea-bird.

(2.) Naff. See Mergus.

NAFFOY, a lake of Ireland, in Galway.

* NAG. *n. ſ.* [*nagge*, Dutch.] 1. A ſmall horſe. A horſe in familiar language.—A hungary lion would fain have been dealing with good horſeflesh; but the *nag* would be too fleet. *L'Eſtrange.*

Thy *nags*, the leaneſt things alive,
So very hard thou lov'ſt to drive. *Prior.*

2. A paramour; in contempt.—

Your ribauld *nag* of Egypt
Hoiſts ſails and flies. *Sbak. Ant. and Cleop.*

NAGAMUNGHAM, a town of Indoſtan, in the Myſore; 23 miles N. of Seringapatam.

NAGARA, or NAGERA, a town of Spain, in Old Caſtile, and territory of Rioja, with a fortreſs; famous for a battle fought near it in 1369. It is ſituated in a fertile country, on a brook called Naserilla. Lon. 2. 20. W. Lat. 42. 25. N.

NAGLES, mountains of Ireland, in Cork.

NAGLIAN, a town of France, in the department of the Po, and late Piedmonteſe; 4 miles N. of Alba.

NAGOLD, a town and river of Wirtemberg, in the Black Foreſt, 22 miles SW. of Stutgard.

NAGORCOT. See Nagracut.

NAGORE, a circar and town of Indoſtan, in Agimere, 40 miles NW. of Agimere, and 92 NW. of Jyepour. Lon. 74. 10. E. Lat. 27. 8. N.

NAGORECOT, or NAGRACUT, a town of India, the capital of a kingdom of the ſame name in the dominions of the Great Mogul, with a rich temple to which the Indians go in pilgrimage. It is ſeated on the river Ravi. Lon. 78. 10. E. Lat. 33. 12. N.

NAGOSLER. See Moguls, § 2.

NAGYAG, a mountainous diſtrict of Tranſylvania, abounding with metals; among which there are 13 different kinds of gold ores, mineraliſed by ſulphur, arſenic, antimony, iron, zinc, &c.

NAGYBANJA, a town of Hungary, famous alſo for gold and ſilver mines.

NAHASH, a tyrant of the Ammonites, whoſe diſgraceful terms offered to the people of Jabeſh gave occaſion to the firſt great victory obtained by king Saul. 1 Sam. xi.

NAHE, a river of Germany, in the Lower Palatinate, now in the French empire, and late electorate of Mentz, which riſes at Naheweiler, and falls into the Rhine at Bingen.

NAHERS. See Naires.

NAHEWEILER, a village of France in the dep. of the Rhine and Moſelle, and late biſhopric of Treves, near the ſource of the Nahe.

(1.) NAHOR, the ſon of Serug, and grandfather of Abraham, the 9th from Noah, was the ſhorteſt lived of the patriarchs before Abraham, having lived only 119 years.

(2.) Nahor, the ſon of Terah, grandſon of the preceding, and brother of Abraham. He reſided at Haran, called alſo *Nahor*, in Meſopotamia, and married Milcah, his neice, by whom be had eight ſons: viz. 1. Huz or Uz, the progenitor of the Uzites or Auſites, who inhabited the land of Uz, on the W. ſide of the Euphrates, where Job dwelt; 2. Buz, the anceſtor of the Buzites, from whom Elihu was deſcended; 3 Kemuel, the father of the Kemelites and of the Arameans or Syrians; 4. Cheſed, the father of a tribe of Chaldeans; 5. Hazo, the anceſtor of the Hazoys, Huzeans, or Choſſeans, in Chuſiſtan, in Perſia; 6. Pildaſh, whom Dr Hyde makes the anceſtor of the Perſians; 7. Jidlaph, and 8. Bethuel, the father of Laban and Rebekah. Nahor had alſo other 4 ſons by his concubine Reumah. Gen xi. xxii. 21—24.

(1.) NAHUM, the 7th of the 12 leſſer prophets, was a native of Elkoſhai, a little village of Galilee.

(2.) Nahum, the prophecy of, a canonical book of the Old Teſtament. The ſubject is the deſtruction of Nineveh, which he deſcribes in the moſt lively and pathetic manner; his ſtyle is bold and figurative, and cannot be exceeded by the moſt perfect maſters of oratory. This prophecy was verified at the ſiege of that city by Aſtyages, A. M. 3378, A. A. C. 622.

NAJAC, a town of France, in the dep. of Aveiron, with a copper mine; 9 miles S. of Ville Franche, and 15 W. of Sauve Terre.

NAIADES, in mythology, inferior deities who preſided over rivers, ſprings, wells, and fountains. The Naiades generally inhabited the country, and reſorted to the woods or meadows near the ſtream over which they preſided. They are repreſented as young and beautiful virgins, often leaning upon an urn, from which flows a ſtream of water. Ægle was the faireſt of the Naiades, according to Virgil. Their name is derived from *ναειν, to flow*. They were held in great veneration among the ancients; and ſacrifices of goats and lambs were offered to them, with libations of wine, honey, and oil; ſometimes offerings of milk, fruit, and flowers.

NAIANT. *part. adj.* in heraldry, a term uſed in blazoning fiſhes, when borne in an horizontal poſture, as if ſwimming.

NAIAS, in botany, a genus of the monandria order, belonging to the diœcia claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. The male calyx is cylindrical and bifid, the corolla quadrifid, there is no filament, nor is there any female calyx or corolla; there is one piſtil, and the capſule is ovate and unilocular.

NAID, the interior of the great deſert of Arabia, inhabited by a few ſcattered tribes of Arabs. See ARABIA, § 4.

NAJERA. See NAGARA.

(1.) * **NAIL.** [*nagl*, Saxon; *nagel*, German.] 1. The hard or horny ſubſtance at the ends of the fingers and toes.—My *nails* can reach unto thine eyes. *Shak.*—

The meaneſt ſculptor in th' Æmilian ſquare,
Can imitate in baſs the *nails* and hair;
Expert in trifles. *Dryden.*

—The *nails* of our fingers give ſtrength to thoſe parts in the various functions they are put to; and defend the numerous nerves and tendons that are under them. *Ray.* 2. The talons of birds; the claws or paws of beaſts. 3. A ſpike of metal by which things are faſtened together.—

As one nail by ſtrength drives out another;
So the remembrance of my former love
Is by a newer object ſoon forgotten. *Shak.*

—For the body of ſhips no nation doth equal England, nor for the oaken timber to build them; and we need not borrow iron for ſpikes or *nails*, to faſten them together. *Bacon.*—The load-ſtone mines in the ſhore of India, are ſo placed in abundance and vigour, that it proves an adventure of hazard to paſs thoſe coaſts in a ſhip with iron *nails*. *Brown.*—

A beechen pail
Hung by the handle on a driven *nail*. *Dryden.*

—An equivocal word uſed for the *nail* of the hand or foot, and for an iron *nail* to faſten any thing. *Watts.* 4. A ſtud; a boſs.—

For not the deſk with ſilver *nails*,
Nor bureau of expence,
Nor ſtandiſh well japan'd avails
To writing of good ſenſe. *Swift.*

5. A meaſure of length; two inches and a quarter. 6. *On the* NAIL. Readily; immediately; without delay. I once ſuppoſed it from a counter ſtudded with nails, but have ſince found in an old record, *ſolvere ſuper unguem*. It therefore means into the hand.—

We want our money *on the nail*,
The banker's ruin'd if he pays. *Swift's Poems.*

(2.) *A* NAIL (§ 1. *def.* 5.) is the 15th part of a yard.

(3.) NAIL, ANNUAL. See ANNALIS CLAVUS.

(4.) NAILS. (§ 1. *def.* 1.) UNGUES, in anatomy. See ANATOMY, *Index*.

(5.) NAILS, in building, &c. (§ 1. *def.* 3.) ſmall ſpikes of iron, braſs, &c. which being driven into wood, ſerve to bind ſeveral pieces together, or to faſten ſomething upon them.

(6.) NAILS, in Hebrew antiquity, were made uſe of by the ancient Jews for cancelling bonds: and the ceremony was performed by ſtriking them through the writing. This ſeems to be alluded to in ſcripture, where God is ſaid by our crucified Saviour to have "blotted out the hand-writing of ordinances that was againſt us, and to have taken it out of the way, nailing it to his croſs." Col. ii. 14.

* *To* NAIL. *v. a.* [from the noun.] 1. To faſten with nails.—

To the croſs he *nails* thy enemies,
The law that is againſt thee, and the ſins
Of all mankind. *Milton.*
The ſecond ſhaft came ſwift and uneſpy'd,
And pierc'd his hand, and *nail'd* it to his ſide. *Dryden.*

2. To ſtud with nails.—

In golden armour glorious to behold,
The rivets of your arms were *nail'd* with gold. *Dryden.*

* **NAILER.** *n. ſ.* [from *nail*.] One whoſe trade is to forge nails; a nail-maker.

NAILING OF CANNON. When circumſtances make it neceſſary to abandon cannon, or when the enemy's artillery are ſeized, and it is not poſſible to take them away, it is proper to nail them up, to render them uſeleſs; which is done by driving a large nail or iron ſpike into the vent of a piece of artillery, to render it unſerviceable. There are various contrivances to force the nail out, as alſo ſundry machines invented for that purpoſe, but they have never been found of general uſe; ſo that the beſt method is to drill a new vent. Gaſper Vimercalus was the firſt who invented the nailing of cannon. He was a native of Bremen, and made uſe of his invention firſt in nailing up the artillery of Sigiſmund Malateſta.

NAILOR, or NAILER. See NAYLOR.

NAIM, or NAIN. See NAIN, N° 2.

(1.) **NAIN**, Lewis Sebaſtian DE, one of the moſt learned and judicious critics and hiſtorians France has produced. He was the ſon of a maſter of the requeſts, and born at Paris in 1637. At 10 years old he went to ſchool at Port Royal, and became one of the beſt writers of that inſtitution. Sacy, his intimate friend, prevailed with him in 1676 to receive the prieſthood; which his humility would not ſuffer him to aſpire to. Buzanval, Biſhop of Beauvois, wiſhed to have him for his ſucceſſor; but Nain was regardleſs of dignities. He died in 1698, aged 61. His principal works are, 1. Memoirs on the firſt ſix ages of the church, 16 vols. 4to. 2. The hiſtory of the emperors, 6 vols 4to. Theſe works are deduced from original ſources, and compoſed with the utmoſt fidelity.

(2.) NAIN, an ancient city of the tribe of Iſſachar, in Galilee, at the foot of Mount Hermon, on the N. Near the gates of this city our Saviour reſtored to life the only ſon of a widow, and Mary Magdalen came and mourned for her ſins at his feet. At preſent

ſent Nain is only a hamlet, inhabited by Chriſtians, Mahometans, and Jews.

NAIRES, Nahers, or Nayers, in modern hiſtory, a name given by the Malabarians to the military of their country, who form a very numerous claſs, out of which the ſovereigns of Malabar chooſe their body-guard.

(1.) NAIRN, a county of Scotland, comprehending the W. part of Murray. It is bounded on the N. by Murray Frith, on the W. and S. by Inverneſs, and E. by Elgin. It is 20 miles long, and 14 broad. The air is temperate and ſalubrious, and the winters are remarkably mild. The face of the country is mountainous, but agreeable; there are ſeveral fertile valleys, which produce good crops; but in general it is beſt adapted for paſturage. Here are alſo large woods of fir, and other trees, with great plenty of game. The moſt remarkable ſtraths in this county are Strathnairn, on the river of that name, in the SW. part of the ſhire; and on the SE. ſide, Stratherin, on both ſides of the Findhorn. Nairn is well watered with ſtreams, rivulets, and lakes, abounding with fiſh. In the S. part there is a ſmall lake, called Moy, ſurrounding an iſland, on which there is a caſtle belonging to M'Intoſh of that Ilk; but the greater part of the county is peopled by the Fraſers, a warlike Highland clan. About four miles from Nairn ſtands the caſtle of Calder, or *Cawdor*, in which, according to tradition, King Duncan I. was murdered by Macbeth. It ſtands on the river of that name, belonging to a branch of the family of Campbell. In this neighbourhood are a quarry of free-ſtone, and many ſigns of copper. About ſix miles NW. of Nairn, a fort hath been built by order of the government, at Arderseer, a ſmall iſthmus upon the Murray Frith. This county is divided into four pariſhes; which contained 6054 inhabitants in 1796, and had increaſed 360 ſince 1755. It ſends a repreſentative to parliament alternately with Cromarty.

(2.) Nairn, a pariſh in the above county, eight miles long from N. to S. and ſix broad; in form reſembling the letter X. The ſoil is partly rich, partly light ſand and clay. The ſurface is moſtly level; the climate is good. The chief crops are barley, oats, peas, and potatoes; but huſbandry is little improved. The population, in 1793, was 2400; increaſe 702 ſince 1755.

(3.) Nairn. [Gael. *Uiſge Nearne*, or the *Water of Alders*], a river of Scotland, which ſeparates the county of Murray from that of Inverneſs, croſſes that of Nairn (N° 1.) falls into the Frith of Murray near Nairn, and gives name to the county, pariſh, and borough. Its banks abound with *alder* trees, and it has a ſalmon fiſhery.

(4.) Nairn, a royal borough in the above pariſh (N° 2.), and the county town, ſuppoſed to be the Tuæsis of Ptolemy, ſituated at the mouth of the river. The harbour, which opened in the Murray Frith, is now choaked up with ſand; and the commerce of the town is inconſiderable. It has a charter dated 1589, by James VI. renewing one granted by Alexander I. and confirmed by Charles II. veſting its government in a provoſt, 3 bailies, dean of guild, treaſurer, and 11 councillors. It had a caſtle, which was taken by the Danes, in the reign of Malcolm I. and the keepers cruelly uſed. Its ruins are now covered by the ſea. The population, in 1793, was above 1100. It joins with Inverneſs, Forres, and Fortroſe, in electing a member of parliament for theſe boroughs.

NAIRNSHIRE. See Nairn, N° 1.

NAISITANI, the people of Naissus.

NAISSAMT, in heraldry, is applied to any animal iſſuing out of the midſt of ſome ordinary, and ſhowing only his head, ſhoulders, fore-feet, and legs, with the tip of his tail; the reſt of his body being hid in the ſhield, or ſome charge upon it; in which it differs from *iſſuant*, which denotes a living creature ariſing out of the bottom of any ordinary or charge.

NAISSUS, in ancient geography, a town of Dardania, a diſtrict of Mœſia Superior, ſaid to be the birth-place of Conſtantine the Great, and where he often reſided; now called Nissa, a city of Servia. Lon. 23° E. Lat. 43° N.

(1.) * NAKED. *adj.* [*nacod*, Saxon.] 1. Wanting clothes; uncovered; bare.—A philoſopher, being aſked in what a wiſe man differed from a fool? anſwered, ſend them both *naked* to thoſe who know them not, and you ſhall perceive. *Bacon.*—

He pitying how they ſtood
Before him *naked* to the air, that now
Muſt ſuffer change. *Milton.*

2. Unarmed; defenceleſs; unprovided.—

Had I but ſerv'd my God with half the zeal
I ſerv'd my king, he would not in mine age
Have left me *naked* to mine enemies. *Shak.*
Behold my boſom *naked* to your ſwords,
And let the man that's injur'd ſtrike the blow. *Addiſon.*

3. Plain; evident; not hidden.—

The truth appears ſo *naked* on my ſide,
That any purblind eye may find it out. *Shak.*

4. Mere; bare; wanting the neceſſary additions; ſimple; abſtracted.—Not that God doth require nothing unto happineſs at the hands of men, ſaving only a *naked* belief, for hope and charity we may not exclude. *Hooker.*

(2.) Naked seeds, in botany, thoſe that are not incloſed in any pod or caſe.

* NAKEDLY. *adv.* 1. Without covering. 2. Simply; merely; barely; in the abſtract.—Though ſeveral ſingle letters *nakedly* conſidered, are found to be articulations only of ſpirit or breath, and not of breath vocalized; yet there is that property in all letters of aptneſs to be conjoined in ſyllables. *Holder.* 3. Diſcoverably; evidently.—

So blinds the ſharpeſt counſels of the wiſe
This overſhadowing Providence on high,
And dazzleth all their cleareſt-ſighted eyes,
That they ſee not how *nakedly* they lie. *Daniel.*

* NAKEDNESS. *n. ſ.* [from *naked*.] 1. Nudity; want of covering.—

My face I'll grime with filth;
And with preſented *nakedneſs* out-face
The winds and perſecutions of the ſky. *Shak.*
Nor he their outward only, with the ſkins
Of beaſts, but inward *nakedneſs*, much more
Opprobrious! with his robe of righteouſneſs,
Arraying, cover'd. *Milton.*

—I entreat my gentle readers to ſew on their tuckers again, and not to imitate the *nakedneſs*, but the innocence of their mother Eve. *Addiſon.*

Thy only armour is thy *nakedneſs*. *Prior.*

2. Want of proviſion for defence.—Spies, to ſee the *nakedneſs* of the land you are come. *Geneſis.* 3. Plainneſs; evidence; want of concealment.—

Why ſeekeſt thou to cover with excuſe
That which appears in proper *nakedneſs?* *Shak.*

NAKIB, in the oriental dignities, an officer who is a deputy to the cadiliſker, or chancellor of Egypt, appointed by the grand ſignior. His office is to carry the ſtandard of Mahomet.

NAKOUS, an Egyptian muſical inſtrument, made like two plates of braſs, and of all ſizes, from two inches to a foot in diameter; they hold them by ſtrings faſtened to their middles, and ſtrike them together ſo as to beat time. They are uſed in the Cophtic churches and in the Mahometan proceſſions.

NALA SUNKRA, a branch of the Indus, which ſeparates from the main ſtream 14 miles SW. of Nuſſerpoor.

NALDOUROUK, a town of Indoſtan, in Amednagur; 76 miles E. of Viſiapour, and 120 W. of Hydrabad.

* NALL. *n.ſ.* An awl, ſuch as collarmakers or ſhoemakers uſe.—

Whoſe bridle and ſaddle, whitleather and *nall*,
With collars and harneſs. *Tuſſer.*

NALLENROE, a lake of Ireland, in Mayo.

NALTON, James, an Engliſh diſſenting clergyman, who was miniſter of St Leonard's, London, and author of many ſermons. He died in 1622.

NAMA, in botany, a genus of the digynia order, belonging to the pentandria claſs of plants; and, in the natural method, ranking under the 13th order, *Succulentæ*. The calyx is pentaphyllous, the corolla quinquepartite, the capſule unilocular and bivalved.

NAMASKETT. See MIDDLEBOROUGH.

(I.) * NAME. *n.ſ.* [*nama*, Sax. *naem*, Dutch.]

1. The diſcriminative appellation of an individual.

What is thy *name?*
Thou'lt be afraid to hear it.
No: though thou call'ſt thyſelf a hotter *name*
Than any is in hell.
My *name*'s Macbeth. *Shak.*

—He called their *names* after the *names* his father had called them. *Gen.* xxvi. 18.—

Thouſands there were in darker fame that dwell,
Whoſe *names* ſome nobler poem ſhall adorn. *Dryden.*

2. The term by which any kind or ſpecies is diſtinguiſhed.—

What's in a *name?* That which we call a roſe,
By any other *name* would ſmell as ſweet. *Shak.*

—If every particular idea that we take in, ſhould have a diſtinct *name*, *names* muſt be endleſs. *Locke.* 3. Perſon.—

They liſt with women each degen'rate *name*,
Who dares not hazard life for future fame. *Dryden.*

4. Reputation; character.—The king's army was the laſt enemy the weſt had been acquainted with, and had left no good *name* behind. *Clarendon.* 5. Renown; fame; celebrity; eminence; praiſe; remembrance; memory; diſtinction; honour.—

What men of *name* reſort to him?
Sir Walter Herbert, a renowned ſoldier;
And Rice ap Thomas with a valiant crew,
And many others of great *name* and worth. *Shak.*

—Viſit eminent perſons of great *name* abroad; to tell how the life agreeth with the fame. *Bacon.*—

Here reſt thy bones in rich Heſperia's plains,
Thy *name*, 'tis all a ghoſt can have, remains. *Dryden.*

A hundred knights
Approv'd in fight, and men of mighty *name*. *Dryden.*

Theſe ſhall be towns of mighty fame,
Tho' now they lie obſcure, and lands without a *name*. *Dryden.*

—Bartolus is of great *name*; whoſe authority is as much valued amongſt the modern lawyers, as Papinian's was among the ancients. *Baker on Learning.* 6. Power delegated; imputed character.—

In the *name* of the people,
And in the power of us the tribunes, we
Baniſh him. *Shak.*

7. Fictitious imputation.—

When Ulyſſes with fallacious arts,
Had forg'd a treaſon in my patron's *name*,
My kinſman fell. *Dryden.*

8. Appearance; not reality; aſſumed character.

I'll to him again, in the *name* of Brook;
He'll tell me all his purpoſe. *Shak.*

—There is a friend which is only a friend in *name*. *Eccluſ.* 9. An opprobrious appellation.—

The huſband
Bids her confeſs; calls her ten thouſand *names*;
In vain ſhe kneels. *Granville.*

Like the watermen of Thames
I row by, and call them *names*. *Swift.*

(II.) NAME denotes a word whereby men have agreed to expreſs ſome idea; or which ſerves to denote or ſignify a thing or ſubject ſpoken of. See WORD. This grammarians uſually call a *noun*, *nomen*, though their noun is not of quite ſo much extent as our name. See NOUN. Seneca (Lib. II. *de Beneficiis*) obſerves, that there are a great number of things which have no name; and which, therefore, we are forced to call by other borrowed names. Names are diſtinguiſhed into *proper* and *appellative*.

1. NAMES, APPELLATIVE or GENERAL, are thoſe which ſignify common ideas; or which are common to many or all individuals of the ſame ſpecies; as *horſe*, *animal*, *man*, *oak*, &c.

2. NAMES, PROPER, are thoſe which repreſent ſome individual thing or perſon, ſo as to diſtinguiſh it from all other things of the ſame ſpecies; as, *Socrates*, which repreſents a certain philoſopher. Proper names are either called *Chriſtian*, as being given at baptiſm; or ſurnames: The firſt impoſed for diſtinction of perſons, anſwering to the Roman *prænomen*; the ſecond, for the diſtinction of families, anſwering to the *nomen* of the Romans, and the *patronymicum* of the Greeks. Originally every perſon had but one name; as among the Jews, *Moſes*, *Joſhua*, &c. among the Egyptians, *Buſiris*; among the Chaldees, *Ninus*; the Medes, *Aſtyages*; the Greeks, *Diomedes*; the Romans, *Romulus*; the Gauls, *Brennus*; the Germans, *Arioviſtus*; the Britons, *Caſſibelan*; the Engliſh, *Hengiſt*, &c. And thus of other nations, except the ſavages of Mount Atlas, whom Pliny and

Marcellinus repreſent as *anonyme* or *nameleſs*; though this is hardly credible. The Jews gave the name at the circumciſion, *viz.* 8 days after the birth: the Romans, to females the ſame day, to males the 9th, at which time they held a feaſt, called NOMINALIA. Since Chriſtianity has obtained, moſt nations have followed the Jews, baptizing and giving the name on the 8th day after the birth; except the ancient Engliſh, who baptized and gave the name on the birth-day. The firſt impoſition of names was founded on different views, among different people; the moſt common was to mark the good wiſhes of the parents, or to entitle the children to the good fortune a happy name ſeemed to promiſe. Hence, *Victor*, *Caſtor*, *Fauſtus*, *Statorius*, *Probus*, &c. Accordingly, we find ſuch names, by Cicero called *bona nomina*, and by Tacitus *fauſta nomina*, were firſt enrolled in the Roman muſters; firſt called to ſerve at the ſacrifices, in the foundation of colonies, &c.—And, on the contrary, Livy calls Atrius Umber, *abominandi ominis nomen*: and Plautus has a ſimilar remark of a perſon named *Lyco*, i. e. *greedy wolf*: Hence, Plato recommends it to men to be careful in giving happy names; and the Pythagoreans taught, that the minds, actions, and ſucceſſes of men, were according to their names, genius, and fate. Thus Panormitan, *ex bono nomine oritur bona præſumptio*; and the common proverb. *Bonum nomen bonum omen*: and hence the foundation of the onomomantia. See ONOMOMANTIA, Abbe Barthelimi ſays, that the greater part of names found in Homer are marks of diſtinction. They were given in honour of the qualities moſt eſteemed in the heroic ages. From the word *polemos*, which ſignifies war, have been formed *Tlepolemus* and *Archeptolemus*, the names of two heroes mentioned in the Iliad. The former ſignifies *able to ſupport*, and the latter, *able to direct the labours of war*. By adding to the word *mache*, or *battle*, certain prepoſitions and different parts of ſpeech, which modify the ſenſe in a manner always honourable, are compoſed the names *Amphimacus*, *Antimachus*, *Promachus*, *Telemachus*. Proceeding in the ſame way with the word *honorea*, ſtrength or intrepidity, they formed the names *Agapenor*, he who eſteems valour; *Agenor*, he who directs it. From *thoes*, ſwift, are derived, *Alcathoes*, *Panthoes*, *Perithoes*, &c. From *nous*, mind, or intelligence, come *Aſtynoes*, *Arſinoes*, *Autenoes*, &c. From *medes*, counſel, *Agamedes*, *Eumedes*, *Lycomedes*, *Thraſmyedes*; and from *clios*, glory, *Amphicles*, *Agacles*, *Iphicles*, *Patroclus*, *Cleobulus*, &c. Hence Camden takes it for granted, that the names, in all nations and languages, are ſignificative, and not ſimple ſounds for mere diſtinction ſake. This holds not only among the Jews, Greeks, Latins, &c. but even the Turks; among whom, Abdalla ſignifies *God's ſervant*; Soliman, *peaceable*; Mahomet, *glorified*, &c. and the ſavages of Hiſpaniola, and throughout America, who, in their languages, name their children, *Gliſtering Light*, *Sun Bright*, *Fine Gold*, *&c.*; and they of Congo, by the names of precious ſtones, flowers, &c. Porphyry notes, that the barbarous *names*, as he calls them, were very emphatical, and very conciſe: and accordingly it was eſteemed a duty to be φερωνυμοι, or *ſui nominis homines*; as Severus, Probos, and Aurelius, are called *ſui nominis imperatores*. It was uſual at giving names to wiſh the children might *diſcharge* their names: Thus when Gunthram king of France named Clotharius at the font, he ſaid, *Creſcat puer, & hujus ſit nominis executor*. The ancient Britons, Camden ſays, generally took their names from colours, becauſe they painted themſelves; which names are now loſt, unleſs they remain among the Welſh. When they were ſubdued by the Romans, they took Roman names, ſome of which ſtill remain corrupted: though the greateſt part became extinct upon the admiſſion of the Anglo-Saxons, who introduced the German names, as *Cridda*, *Penda*, *Oſwald*, *Edward*, &c.—The Danes, too, brought with them their names; as *Swayne*, *Harold*, *Canute*, &c. The Normans, at the Conqueſt, brought in other German names, as originally uſing the German tongue; ſuch as *Robert*, *William*, *Richard*, *Henry*, *Hugh*, &c. as the Greek names, *Aſpaſius*, *Boethius*, *Symmachus*, &c. were introduced into Italy upon the diviſion of the empire. After the Conqueſt, the Engliſh, who had ever been averſe to foreign names, as deeming them unlucky, began to take Hebrew names; as *Matthew*, *David*, *Samſon*, &c. The various names anciently or at preſent obtaining among us, from what language or people ſoever borrowed, are explained by Camden in his Remains. As to the period when names began to be multiplied, and ſurnames introduced, &c. See SURNAME. Of late it has become not unuſual to give ſurnames for Chriſtian names, which ſome diſlike, as tending to occaſion confuſion. But a much more abſurd practice, and more likely to occaſion confuſion, has crept in among modern Europeans, of giving *female* names to men, and *maſculine* names to women, and ſometimes names of *both* kinds to the ſame perſon: *e. g.* *Anne* of Montmorency, Conſtable of France; *Francis Mary* Pico, D. of Mirandola; *George Anne* Bellamy, the celebrated Engliſh actreſs, &c. Such names as theſe two laſt ſeem to be only proper for *Hermaphrodites*. Some change their names at confirmation; which is uſual in foreign countries. Thus, two ſons of Henry II. of France, chriſtened *Alexander* and *Hercules*, changed them at confirmation to *Henry* and *Francis*. In monaſteries, the religious aſſume new names, or rather *titles*, at their admittance, to ſhow they are about to lead a new life, and have renounced the world, their family, and even their name: *v. g.* ſiſter Mary *of the Incarnation*, brother Henry *of the Holy Sacrament*, &c. The popes uniformly change their names at their exaltation to the pontificate; a cuſtom firſt introduced by Pope Sergius, whoſe name till then, ſays Platina, was *Swineſnout*. But Onuphrius refers it to John XII. or XIII. and gives as a reaſon for it, that it was done in imitation of St Peter and St Paul, who were firſt called *Simon* and *Saul*. Among the ancients, thoſe deified by the Heathen conſecrations had new names given them; as Romulus was called *Quirinus*; Melicertes, *Portumnus*, &c. New names were alſo given in adoptions, and ſometimes by teſtament: thus L. Æmilius, adopted by Scipio, took the name of *Scipio Africanus*; and thus Auguſtus, who at firſt was called *C. Octavius Thurinus* being adopted by Caius Julius Cæſar, took the name of *Caius Julius Cæſar Octavianus*. Names were alſo changed at enfranchiſements into new cities. Thus Lucumo, at his firſt being made free of Rome, took the name of *Lucius Tarquinius;* and ſlaves, when made free, uſually aſſumed their maſters names. Thoſe called to the equeſtrian order, if they had baſe names, were always new named, *nomine ingenuorum veterumque Romanorum*. And among the primitive Chriſtians, it was the practice to change the names of the catechumens; thus the renegado Lucianus, till his baptiſm, was called *Lucius*. About the middle of the 15th century, it was the fancy of the wits and learned men of the age, particularly in Italy, to change their baptiſmal names for claſſical ones. As Sannazarius, for inſtance, who altered his own plain name *Jacopo* to *Actius Syncerus*. Numbers did the ſame, and among the reſt PLATINA the hiſtorian at Rome, who, not without a ſolemn ceremonial, took the name of *Callimachus* inſtead of *Philip*. Pope Paul II. who reigned about that time, was ſuſpicious and illiterate. He had no idea that perſons could wiſh to alter their names unleſs they had ſome bad deſign, and actually ſcrupled not to employ impriſonment and other violent methods to diſcover the fancied myſtery. Platina was moſt cruelly tortured on this frivolous account; he had nothing to confeſs; ſo the pope, after endeavouring in vain to convict him of hereſy, ſedition, &c. releaſed him after a long impriſonment. In the 15th and 16th centuries, when moſt authors wrote in Latin, it was very common to Latinize both their names and ſurnames; but this practice with regard to the latter is now very generally given up. See SURNAME.

* *To* NAME. *v. a.* [from the noun.] 1. To diſcriminate by a particular appellation impoſed.—

I mention here a ſon of the king's whom Florizel
I now *name* to you; and with ſpeed ſo pace
To ſpeak of Perdita. *Shakeſpeare.*

—Thou haſt had ſeven huſbands, neither waſt thou *named* after any of them. *Tob.* iii. 8.—His name was called Jeſus, which was ſo *named* of the angel before he was conceived. *Luke*, ii. 21.—

Thus was the building left
Ridiculous, and the work, Confuſion, *named*. *Milton.*

2. To mention by name.—Accuſtom not thy mouth to ſwearing; neither uſe thyſelf to the naming of the Holy One. *Eccluſ.* xxiii. 9.—

My tongue could *name* whate'er I ſaw. *Milt.*
Thoſe whom the fables name of monſtrous ſize. *Milton.*

3. To ſpecify; to nominate.—

Did my father's godſon ſeek your life?
He whom my father *nam'd?* your Edgar. *Shak.*

—Bring me him up whom I ſhall *name*. 1 *Sam.* xxviii. 8.—Let any one *name* that propoſition whoſe terms or ideas were either of them innate. *Locke.* 4. To utter; to mention.—Let my name be *named* on them. *Gen.* xlviii. 16. 5. To entitle.

Celeſtial, whether among the thrones, or *nam'd*
Of them the higheſt. *Milton.*

* NAMELESS. *adj.* [from *name*.] 1. Not diſtinguiſhed by any diſcriminative appellation.—

On the cold earth lies th' unregarded king,
A headleſs carcaſe, and a *nameleſs* thing. *Denh.*

The milky way,
Fram'd of many *nameleſs* ſtars. *Waller.*

Thy reliques, Rowe, to this fair ſhrine we truſt,
And ſacred, place by Dryden's awful duſt;
Beneath a rude and *nameleſs* ſtone he lies,
To which thy tomb ſhall guide enquiring eyes. *Pope.*

2. One of which the name is not known or mentioned.—Little credit is due to accuſations of this kind, when they come from ſuſpected, that is, from *nameleſs* pens. *Atterbury.*—

Such imagery of greatneſs ill became
A *nameleſs* dwelling. *Harte.*

* NAMELY. *adv.* [from *name*.] Particularly; ſpecially; to mention by name.—It can be to nature no injury, that of her we ſay the ſame which diligent beholders of her works have obſerved; *namely*, that ſhe provideth for all living creatures nouriſhment which may ſuffice. *Hooker.*—

Which of theſe ſorrows is he ſubject to?
To none of theſe except it be the laſt;
Namely, ſome love that drew him oft from home. *Shak.*

—The council making remonſtrances unto queen Elizabeth, of the continual conſpiracies againſt her life; and *namely*, that a man was lately taken, who ſtood ready, in a very ſuſpicious manner, to do the deed; adviſed her to go leſs abroad weakly attended. But the queen anſwered, that ſhe had rather be dead, than put in cuſtody. *Bacon.*—For the excellency of the ſoul, *namely*, its power of divining in dreams, that ſeveral ſuch divinations have been made, none can queſtion. *Spect.*—Solomon's choice does not only inſtruct us in that point of hiſtory, but furniſhes out a very fine moral to us; *namely*, that he who applies his heart to wiſdom, does at the ſame time take the moſt proper method for gaining long life, riches, and reputation. *Guardian.*

* NAMER. *n. ſ.* [from *name*.] One who calls or knows any by name.

* NAMESAKE. *n. ſ.* One that has the ſame name with another.—Nor does the dog-fiſh at ſea, much more make out the dog of land, than that his cognominal, or *nameſake* in the heavens. *Brown.*—One author is a mole to another; it is impoſſible for them to diſcover beauties: they have eyes only for blemiſhes: they can indeed ſee the light, as is ſaid of their *nameſakes;* but immediately ſhut their eyes. *Addiſon.*

NAMPHIO, or NANFIO, an iſland in the Grecian Archipelago, 15 miles in circumference, without town or harbour, but containing a few villages inhabited by Greeks, with the relics of a temple of Apollo, its marble columns, and other ruins. It is mountainous, and abounds with partridges, bees, and honey. It lies N. of Santorino. Lon. 26. 10. E. Lat. 36. 27. N.

NAMPTWICH, or NANTWICH, a town of Cheſhire, ſituated on the Weever, 14 miles SE. of Cheſter and 162 of London. It lies in the Vale Royal, and is one of the largeſt and beſt built towns in the county, the ſtreets being very regular, and adorned with many gentlemens houſes. The inhabitants have 3 fairs and a large market on Saturday for corn and cattle, and as it is a great thoroughfare to Ireland, they have a good trade in cheeſe and fine white ſalt, which are made to the greateſt perfection; and in ſhoes ſent to London. It is governed by a conſtable, &c. who are guardians of the ſalt ſprings. It is divided by the Weever into equal parts, which is not navigable farther than Winsford bridge. The Cheſter canal terminates in a handſome baſon near this place. In this town were ſeveral religious foundations, now no more. The church is a handſome building in the form of a croſs, with an octangular tower in the middle. Lon. 2. 25. W. Lat. 53. 6. N.

NAMSLAW, a town of Sileſia, in Breſlaw, 12 miles SE. of Oels. It was taken by the Pruſſians, after a canonade of 3 days, in 1741.

(1.) NAMUR, a late province of the ci-devant Auſtrian Netherlands, lying between the Sambre and Meuſe, now annexed to the French empire, and forming the dep. of the Sambre and Meuſe. It was bounded on the N. by the late Auſtrian Brabant, on the E. and S. by the biſhopric of Liege, and on the W. by Hainault. It is pretty fertile; has ſeveral foreſts, marble quarries, and mines of iron, lead, and pit-coal; and is about 30 miles long and 20 broad. Namur was the capital of the province, as it is now of the department.

(2.) NAMUR, a large, rich, and very ſtrong town of France, capital of the department of the Sambre and Meuſe, as it was of the late county of Namur, with a ſtrong caſtle and ſeveral forts, viz. Fort William, Fort Maeſe, Fort Coquelet, and Fort Eſpinor. The caſtle is built in the middle of the town on a craggy rock. It was beſieged and taken by the French under the D. of Luxemburg, in 1692; but was bombarded and retaken in 1695, by K. William III. who took it in the ſight of an army of 100,000 French, though there were 60,000 men in garriſon. It was ceded to the houſe of Auſtria in 1713, but taken by the French in 1746; and reſtored by the treaty of Aix-la-Chapelle. On the 2d Dec. 1792, it was taken by the French republicans, under Gen. Valence; but they were forced by the allies to evacuate it in 1793. But on the 16th July, 1794, Gen. Beaulieu, finding it no longer tenable, left it with only 200 men, who ſurrendered it next day, with a great quantity of artillery and ſtores to the French. It is ſituated between two mountains, at the confluence of the rivers Meuſe and Sambre. Lon. 4. 57. E. Lat. 50. 25. N.

NANCI, or } a town of France, in the dep. of
NANCY, } the Meurthe, and late capital of Lorrain, ſituated on the Meurthe. It is alternately capital with Luneville of the department. It is divided into the Old and New Towns. The firſt, though irregularly built, is very populous, and contains the ducal palace: the ſtreets of the New Town are as ſtraight as a line, adorned with handſome buildings, and a very fine ſquare. The primatial church is a magnificent ſtructure, and in that of the Cordeliers are the tombs of the ancient dukes. The two towns are ſeparated by a canal; and the new town was very well fortified, but the king of France demoliſhed the fortifications. It has been taken and retaken ſeveral times; particularly by the French, to whom it was ceded in 1736, to enjoy it after the death of Staniſlaus. Lon. 6. 17. E. Lat. 48. 41. N.

NANDINA, in botany, a genus of the monogynia order, belonging to the hexandria claſs of plants.

NANDRANY, an ancient Roman fort of Hungary, 14 miles W. of Arad.

NANFIO. See NAMPHIO.

NANGASAKI, a ſea port of Japan, on the W. coaſt of the iſle of Ximo, ſurrounded with ſharp rocks and barren mountains. It is the only port of Japan open to ſtrangers. The Dutch factors reſide in it, but are not allowed to come within the city, except on the arrival of their ſhips; when they are obliged to lodge their guns, ſails, rigging, &c. as pledges of their good behaviour. Lon. 128. 52. E. Lat. 32. 36. N.

NANI, John Baptiſt, a noble Venetian hiſtorian, born in 1616. His father was procurator of St Mark, and ambaſſador from Venice to Rome. Pope Urban VIII. a juſt valuer of merit, ſoon perceived that of young Nani. He was admitted into the college of ſenators in 1641, and was ſoon after nominated ambaſſador in France. He procured conſiderable ſuccours for the war of Candia againſt the Turks; and became, after his return to Venice, ſuperintendant of the war office and of finances. He was afterwards ambaſſador to the empire; where he rendered great ſervices to his country. He was again ſent into France in 1660 to ſolicit freſh ſuccours for Candia; and on his return was appointed procurator of St Mark. He died Nov. 5, 1678, age 63. The ſenate had appointed him to write the hiſtory of the republic; which he executed to the ſatisfaction of the Venetians, although the work was leſs admired by foreigners, who were not proper judges of the accuracy with which he ſtated the facts, or the purity of his diction, or the ſimplicity of his ſtyle. In writing his hiſtory of Venice he has given an univerſal hiſtory of his times, eſpecially with reſpect to the affairs of the French in Italy. This hiſtory, which is continued from 1613 to 1671, was printed at Venice in 2 vols 4to, in 1662 and 1679.

NAN-KING, a city of China, and capital of the province of Kiang-nan, is ſaid to have been formerly one of the moſt beautiful and flouriſhing cities in the world. When the Chineſe ſpeak of its extent, they ſay, if two horſemen ſhould go out by the ſame gate, and ride round it on full ſpeed, taking different directions, they would not meet before night. This account is evidently exaggerated; but it is certain, that Nan-king ſurpaſſes in extent all the other cities of China. We are aſſured that its walls are five leagues and a half in circumference. It is ſituated 3 miles from the river Yang-tſekiang: it is of an irregular figure; the mountains within its circumference having prevented it being built on a regular plan. It was formerly the imperial city; hence the name ſignifies, *the Southern Court;* but ſince the ſix grand tribunals have been transferred to Peking, it is called *Kiang-ning* in all the public acts. It has loſt much of its ancient ſplendour: it had formerly a magnificent palace, no veſtige of which is now to be ſeen; an obſervatory at preſent neglected, temples, tombs of the emperors, and other ſuperb monuments, of which nothing remains. A third of the city is deſerted, but the reſt is extremely populous and full of buſineſs;

particularly by the manufacture of a ſpecies of cotton cloth, of which great quantities are imported into Europe under the name of Nankin. The ſtreets are not ſo broad as thoſe of Peking, but they are very beautiful, well paved, and bordered with rich ſhops. In this city reſides one of thoſe great mandarins called *Tſong-tou*, who takes cognizance of all important affairs, not only of both the governments of the province, but alſo of thoſe of the province of Kiang-ſi. The Tartars have a numerous garriſon here, commanded by a general of there own nation; and they occupy a quarter of the city, ſeparated from the reſt by a plain wall. The gates are very beautiful, and ſome temples, among which is the famous porcelain tower. It is 200 feet high, and divided into 9 ſtories by plain boards within, and without by cornices and ſmall projections covered with green varniſhed tiles. There is an aſcent of 40 ſteps to the firſt ſtory; between each of the others there are 21. The breadth and depth of the river Yang-tſe-kiang formerly rendered the port of Nan-king very commodious; but at preſent large barks, or rather Chineſe junks, never enter it. In April and May a great number of excellent fiſh are caught in this river near the city, which are ſent to court; they are covered with ice, and tranſported in that manner by barks kept entirely on purpoſe. Although this city is above 600 miles from Peking, theſe boats make ſuch expedition, that they arrive there in 8 or 9 days. This city, though the capital of the province, has under its particular juriſdiction only 8 cities of the 3d claſs. The number of its inhabitants is ſaid to be 1,000,000, beſides the garriſon of 40,000 men. Lon. 119. 25. E. Lat. 32. 46. N.

NANNIUS, Peter, a learned Dutch author, born at Alcmaer, in 1500. He wrote a work entitled *Dialogues of the Heroines*, and tranſlated many of the Greek claſſics. He died in 1557.

NANS, a town of France, in the dep. of the Var; 7 miles SSW. of St Maximin.

(1.) **NANSEMOND**, a county of Virginia, on the S. ſide of the James, and W. of Norfolk county; 44 miles long, and 24 broad, containing 5193 citizens, and 3817 ſlaves, in 1795.

(2.) Nansemond, a navigable river of Virginia, which riſes in Great Diſmal Swamp, and running firſt N. then NE. falls into the James, a few miles W. of the Elizabeth.

NANSIO, an erroneous ſpelling for Nanfio. See Namphio.

NANT, a town of France, in the dep. of the Aveiron, 10½ miles SE. of Milhau.

NANTASKET, the entrance into the channels of Boſton harbour, Maſſachuſetts.

NAN-TCHANG, the capital of Kiang-ſi, a province of China. This city has no trade but that of porcelain, which is made in the neighbourhood of Jao-tcheou. It is the reſidence of a viceroy, and comprehends in its diſtrict 8 cities; 7 of which are of the 3d claſs, and one of the 2d. So much of the country is cultivated, that the paſtures left are ſcarcely ſufficient for the flocks.

NANTENANE, a town of Ireland, in the county of Limerick, and province of Munſter.

NANTES, an ancient, rich, and very conſiderable city of France, in the dep. of the Lower Loire, and late prov. of Bretagne, with an univerſity. It was formerly the reſidence of the dukes of Bretagne, where they built a very ſtrong caſtle on the ſide of the river. The cathedral contains the tombs of the ancient dukes. There are ſeveral fine bridges over the Loire, which is navigable. The ſuburbs are larger than the city. The Spaniards trade here with wine, fine wool, iron, ſilk, oil, oranges, and lemons; and they carry back cloth, ſtuffs, corn, and hard-ware. The Dutch ſend ſalt fiſh, and all ſorts of ſpices; and in return have wine and brandy. The Swedes bring copper; and the Engliſh, lead, tin, and pit-coal. In this city Henry IV. promulgated the famous edict in 1598, called the *Edict of Nantes*, which was revoked by Lewis XIV. in 1685. The bridge is near a mile and a half in length, being continued acroſs all the little iſlands in the Loire, from N. to S. The territory of Nantes lies on both ſides the Loire, and feeds a great number of cattle. Large veſſels can come no higher than Port Launai, which is 12 miles from Nantes. Lon. 1. 31. W. Lat. 47. 13. N.

(1. 2.) **NANTEUIL**, 4 towns of France; viz. 1. in the dep. of Aiſne, between Meaux and Chateau-Thierry: 2, in that of Marne, 6 miles N. of Epernay:

(3.) Nanteuil en Vallee, in the dep. of Charente, 6 miles SE. of Ruffee: and,

(4.) Nanteuil le Haudouin, in the department of the Oiſe, 7½ miles S. of Creſpy.

NANTICOKE, or **NANTIKOKE**, a town and river of Maryland. The latter runs into Cheſapeak Bay.

NANTIKOKES, a nation of N. American Indians, who formerly lived in Maryland on the above river. They were ſkilled in the diabolical art of poiſoning, by which they and ſome neighbouring tribes, equally practiſed in that art, are now nearly extirpated. The remains of them emigrated to the N. of Suſquehannah.

NANTMILL, East and West, two townſhips of Pennſylvania, in Cheſter county.

NANTUA, a town of France, in the dep. of Ain; 36 miles W. of Geneva.

(1.) **NANTUCKET**, an iſland of Maſſachuſetts, E. of Martha's Vineyard, and 24 miles S. of Cape Cod. It is 15 miles long and from 3½ to 11 broad. It conſtitutes a county of the ſtate; contains about 6420 citizens, and ſends a delegate to the Court. The people are moſtly Quakers, and are very induſtrious; having a duck manufactory, a whale fiſhery, and 10 ſpermaceti works. It was much hurt during the American war. (See America, § 14; and England, § 96.) It contains about 23,000 acres, and lies between Lon. 69. 56. and 70° 13′ 30″ W. and between Lat. 42. 13. and 42° 22′ 30″ N.

(2.) Nantucket, the capital of the above iſland; 123 miles SW. of Boſton, and 382 NE. of Philadelphia. Its exports in 1794 amounted to 20,517 dollars.

(3.) Nantucket Shoal, a ſand-bank, 15 leagues long and 6 broad, on the SE. coaſt of the above iſland.

NANTUEIL, Robert, the celebrated deſigner and engraver to the cabinet of Lewis XIV. was born at Rheims in 1630. His father, a ſhopkeeper, owns on the 15th of May 1618; and Newton applied the palpable tendency of heavy bodies to the earth to the ſyſtem of the univerſe in general; but Napier ſought out his admirable rules by a ſlow ſcientific progreſs, ariſing from the gradual evolution of truth." The laſt literary exertion of this eminent perſon was the publication of his *Rhabdology and Promptuary* in 1617, which he dedicated to the Chancellor Seton; and ſoon after died at Merchiſton on the 3d of April O. S. 1617, in his 68th year, and 23d of his happy invention. —The titles of his publiſhed works are: 1. A plain diſcovery of the Revelation of St John. 2. *Mirifici ipſius canonis conſtructio et logarithmorum, ad naturales ipſorum numeros habitudines.* 3. *Appendix de alia atque præſtantiore logarithmorum ſpecie conſtituenda, in qua ſcilicet unitas logarithmus eſt.* 4. *Rhabdologiæ, ſeu numerationis per virgulas libri duo.* 5. *Propoſitiones quædam eminentiſſimæ, ad triangula ſphærica mira facilitate reſolvenda.* 6. Letter to Anthony Bacon (the original of which is in the archbiſhop's library at Lambeth), entitled "Secret inventions, profitable and neceſſary in theſe days for the defence of this iſland, and withſtanding ſtrangers enemies to God's truth and religion;" which the earl of Buchan has publiſhed in the Appendix to his Account of Napier's Writings. This letter is dated June 2, 1596, about which time it appears the author had ſet himſelf to explore his logarithmic canon. This eminent perſon was twice married. By his firſt wife, who was a daughter of Sir James Stirling of Keir, he had one ſon, who ſucceeded to the eſtate. By his ſecond wife, a daughter of Sir James Chiſholm of Cromlix, he had a numerous iſſue.

(2.) Napier, Archibald, the only ſon of Baron Napier, by his firſt wife, was a perſon of fine parts and learning. Having more a turn to public buſineſs than his father, he was made a privy counſeller by James VI. under whom he alſo held the offices of treaſurer depute, juſtice-clerk, and ſenator of the college of juſtice. By Charles I. he was raiſed to the peerage by the title of *Lord* Napier.

(1.) Napier's Rods, or Bones, an inſtrument invented by Baron Napier, whereby the multiplication and diviſion of large numbers is much facilitated.

(2.) Napier's Rods, construction of. Suppoſe the common table of multiplication to be made upon a plate of metal, ivory, or paſteboard, and then conceive the ſeveral columns (ſtanding downwards from the digits on the head) to be cut aſunder; theſe are called *Napier's rods for multiplication.* But then there muſt be a good number of each; for as many times as any figure is in the multiplicand, ſo many rods of that ſpecies (*i. e.* with that figure on the top of it) muſt we have; though ſix rods of each ſpecies will be ſufficient for any example in common affairs: there muſt be alſo as many rods of *cyphers.* The figures on every rod are written in an order different from that in the table. Thus the little ſquare ſpace or diviſion in which the ſeveral products of every column are written, is divided into two parts by a line acroſs from the upper angle on the right to the lower on the left; and if the product is a digit, it is ſet in the lower diviſion; if it has two places, the firſt is ſet in the lower, and the ſecond in the upper diviſion; but the ſpaces on the top are not divided; alſo there is a rod of digits, not divided, which is called the *index rod,* and of this we need but one ſingle rod. See the figure of all the different rods, and the index, ſeparate from one another, on *Plate* CCXXXVII. N° 1 & 2.

(3.) Napier's rods, method of using. 1. *Multiplication.* Firſt lay down the index rod; then on the right of it ſet a rod, whoſe top is the figure in the higheſt place of the multiplicand: next to this again, ſet the rod whoſe top is the next figure of the multiplicand; and ſo on in order to the firſt figure. Then is your multiplicand tabulated for all the 9 digits; for in the ſame line of ſquares ſtanding againſt every figure of the index rod, you have the product of that figure; and therefore you have no more to do but to transfer the products and ſum them. But in taking out theſe products from the rods, the order in which the figures ſtand obliges you to a very eaſy and ſmall addition; thus, begin to take out the figure of the lower part, or units place, of the ſquare of the firſt rod on the right; add the figure in the upper part of this rod to that in the lower part of the next, and ſo on; which may be done as faſt as you can look on them. To make this practice as clear as poſſible, take the following example: To multiply 4768 by 385. Having ſet the rods together for the number 4768 (*ibid.* n° 2.) againſt 5 in the index, I find this number, by adding according to the rule, - - - 23840

Againſt 8, this number - - - -	38144
Againſt 3, this number - - - -	14304
Total product - - - - -	1835680

To make the uſe of the rods more regular and eaſy, they are kept in a flat ſquare box, whoſe breadth is that of ten rods, and the length that of one rod, as thick as to hold ſix (or as many as you pleaſe) the capacity of the box being divided into ten cells, for the different ſpecies of rods. When the rods are put up in the box, (each ſpecies in its own cell, diſtinguiſhed by the firſt figure of the rod ſet before it on the face of the box near the top,) as much of every rod ſtands without the box as ſhows the firſt figure of that rod: alſo upon one of the flat ſides without and near the edge, upon the left hand, the index rod is fixed; and along the foot there is a ſmall ledge; ſo that the rods when applied are laid upon this ſide, and ſupported by the ledge, which makes the practice very eaſy; but in caſe the multiplicand ſhould have more than 9 places, that upper face of the box may be made broader. Some make the rods with 4 different faces, and figures on each for different purpoſes.—2. *Diviſion.* Firſt tabulate your diviſor; then you have it multiplied by all the digits, out of which you may chooſe ſuch convenient diviſors as will be next leſs to the figures in the dividend, and write the index anſwering in the quotient, and ſo continually till the work is done. Thus 2179788, divided by 6123, gives in the quotient 356. Having tabulated the diviſor 6123, you ſee that 6123 cannot be had in 2179; therefore take five places, and on the rods find a number that is equal or next leſs to 21,797, which is 18,369; that is, 3 times the diviſor; wherefore ſet 3 in the quotient, and ſubtract 18,369 from the figures above, and there will remain 3428; to which add 8, the next figure of the dividend, and ſeek again on the rods for it, or the next leſs, which you will find to be five times; therefore ſet 5 in the quotient, and ſubtract 30,615 from 34,288, and there will remain 3673; to which add 8, the laſt figure in the dividend, and finding it to be juſt 6 times the diviſor, ſet 6 in the quotient.

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6123)2179788(356
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      34288
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* NAPKIN. *n. ſ.* [from *nap*; which etymology is oddly favoured by *Virgil*, *Tonſiſque ferunt mantilia villis*; *naperia*, Italian.] 1. A cloth uſed at table to wipe the hands.—By art are weaved *napkins*, ſhirts, and coats, inconſumptible by fire. *Brown's Vulg. Err.*—The ſame matter was woven into a *napkin* at Louvain, which was cleanſed by being burnt in the fire. *Wilkins.*—*Napkins*, Heliogabalus had of cloth of gold. *Arbuthnot.* 2. A handkerchief. Obſolete. This ſenſe is retained in Scotland —

I am glad I have found this *napkin*. *Shak.*

(I, 1.) NAPLES, a kingdom of Italy, comprehending the ancient countries of Samnium, Campania, Apulia, and Magna Græcia. It is bounded on all ſides by the Mediterranean and Adriatic, except on the NE. where it joins the Eccleſiaſtical ſtate. Its greateſt length from SE. to NW. is about 280 Engliſh miles; and its breadth from NE. to SW. from 96 to 120.

(2.) Naples, climate, soil, produce, cattle, manufactures, &c. of. The climate of Naples is extremely hot, eſpecially in July, Auguſt, and September. In winter there is ſeldom any ice or ſnow, except on the mountains.—On account of its fertility, it is juſtly termed an earthly paradiſe; for it abounds with all ſorts of grain, the fineſt fruits and garden-productions of every kind, with rice, flax, oil, and wine, in the greateſt plenty and perfection. It affords alſo ſaffron, manna, alum, vitriol, ſulphur, rock-cryſtal, marble, and ſeveral ſorts of minerals, together with fine wool and ſilk. The horſes are famous, and the flocks and herds very numerous. Beſides theſe products, of which a conſiderable part is exported, there are manufactures of ſnuff, ſoap, and glaſs ware. Waiſtcoats, caps, ſtockings, and gloves, are alſo made of the filaments of a ſhell-fiſh, which are warmer than thoſe of wool, and of a beautiful gloſſy green. In this kingdom likewiſe is found the *Phrygian ſtone*, or *pietra fungifera*, which, being laid in a damp ſhady place, will yield muſhrooms, ſometimes of a very large ſize, eſpecially if the ſtone is ſprinkled with hot water. See Agaricus, and Lyncurius. One of the greateſt inconveniences to which this kingdom is expoſed is earthquakes, which the eruptions of Mount Vesuvius contribute, in ſome meaſure, to prevent. (See Calabria.) Another, common to it with other hot countries, is the great number of reptiles and inſects, of which ſome are very poiſonous, particularly ſcorpions and tarantulæ.

(3.) Naples, government of. The government of Naples is a deſpotic monarchy, though ſomething like the form of a feudal conſtitution in its ancient purity is ſtill kept up by the biennial ſummons of the general aſſembly. This convention, which conſiſts of the nobility and commons, is called together every two years, to deliberate on the cuſtomary free gift to the crown.

(4.) Naples, history of, from Arechis's assumption of the sovereignty to his death. The ancient hiſtory of this country falls under the articles Rome and Italy; the preſent ſtate of it, as well as of the reſt of Italy, is owing to the conqueſts of Charlemagne. When he put an end to the kingdom of the Lombards, he obliged the dukes of Friuli, Spoleto, and Benevento, to acknowledge him as king of Italy; but allowed them to exerciſe the ſame power and authority which they had enjoyed before his conqueſt. Of theſe three dukedoms Benevento was by far the moſt powerful and extenſive, as it comprehended almoſt all the preſent kingdom of Naples; that part of Calabria Ultra, beyond the Savuto and Peto, a few maritime cities in Calabria Citra, with the city of Acripoli and the promontory of Licoſa; and, laſtly, the dukedoms of Gaeta, Naples, and Amalfi, which were very inconſiderable, and extended along the ſhore only about 100 miles, interrupted by the Gaſtaldate, or county of Capua. This flouriſhing and extenſive dukedom was at this time governed by Arechis, who had married one of the daughters of Deſiderius, the laſt king of the Lombards, and had ſubmitted and taken the oath of allegiance to the emperor Charles. But a few years after, he renounced his allegiance to the Franks, and declared himſelf an independent ſovereign. To ſtrengthen himſelf againſt Pepin K. of Italy, who reſided at Ravenna, he enlarged and fortified the city of Benevento, and built Salerno on the ſea-coaſt, ſurrounding it with a very ſtrong and high wall. He engaged in ſeveral wars with the Greeks, whom he ſometimes obliged to give him hoſtages; but having invaded the territories of the pope, Charlemagne returned to Italy. Arechis, unable to oppoſe ſuch a formidable enemy, ſent his eldeſt ſon, Romuald, to Rome, with an offer of ſubmiſſion; but, at the inſtigation of the pope, Charles refuſed the offer, and detained his ſon priſoner; after which he ravaged the country, and made himſelf maſter of Capua. Other deputies, however, proved more ſucceſsful; and, in 787, a peace was concluded on theſe conditions: That Arechis and the Beneventans ſhould renew their allegiance to the Franks; that he ſhould pay a yearly tribute to Pepin, deliver up all his treaſure, and give his ſon Grimoald and his daughter Adelgiſa, with 12 others, as hoſtages for his fidelity; however Adelgiſa was reſtored to her father. Charles had no ſooner left Italy than Arechis forgot all his engagements, and began to negociate with Irene, empreſs of Conſtantinople, for expelling the Franks out of Italy. For himſelf he deſired the honour of patriciate, and the dukedom of Naples; and, in return, promiſed to acknowled knowledge the Greek emperor as his ſovereign. He required, however, to be ſupported by a Greek army; and that his brother-in-law Adalgiſus, ſon to king Deſiderius, ſhould be ſent over into Italy to raiſe a party. Theſe conditions were readily accepted, on condition that prince Romuald ſhould be ſent as an hoſtage; but before the completion of the terms, prince Romuald died, and ſoon after him his father.

(5.) **NAPLES, HISTORY OF, FROM ARECHIS'S DEATH TILL THAT OF SICARDO.** After the death of Arechis, the Beneventans ſent a moſt ſubmiſſive embaſſy to Charlemagne; in conſequence of which Grimoald, the late king's ſon, was allowed to aſſume the government, after he had agreed to ſeveral conditions, of which two were, That he ſhould oblige the Lombards to ſhave their beards; and, that he ſhould cauſe the walls of Salerno, Acerenza, and Conſia, to be demoliſhed.—The new king for ſome time continued faithful to his engagements, excepting the laſt article. Yet having contracted an alliance with the Greek emperor, by marrying his niece Wanzia; in the 5th year of his reign a war broke out between him and Pepin, which continued for 12 years; after which a truce was concluded. Grimoald ſurvived this pacification three years, and was ſucceeded by his treaſurer Grimoald II. who ſubmitted to Charlemagne after the death of Pepin; and from this time the Beneventans were looked upon as tributaries of the weſtern emperors. As yet, however, Naples did not own allegiance to the dukes of Benevento, but was held by the eaſtern emperors; and frequent wars took place between the Beneventans and Neapolitans. This was the caſe when Grimoald II. aſcended the throne. He concluded a peace with them, but it was of ſhort continuance; for Theodore, governor of Naples, having granted protection to Dauferius, a noble Beneventan, who had been concerned in a conſpiracy againſt his prince, Grimoald marched againſt Naples, and inveſted it by ſea and land. Theodore ſtill refuſed to deliver up the traitor, and a general engagement enſued by land and ſea; in which the Neapolitans were defeated with ſo great ſlaughter, that the ſea was ſtained with their blood for above ſeven days. Theodore then conſented to deliver up Dauferius, with 8000 crowns for the expences of the war; and Grimoald not only pardoned Dauferius, but received him into favour; the traitor, however, was ſeized with remorſe, and went a pilgrimage to the Holy Land, carrying a large ſtone in his mouth, by way of penance, which he never took out but at meals. In 821 Grimoald was murdered by Radelchis, count of Conſia, and Sico, gaſtald of Acerenza, the latter of whom ſucceeded to the duchy of Benevento. Radelchis being ſoon after ſeized with remorſe, became a monk; while Sico aſſociated his ſon Sicardo with him in the government, and ſoon after attacked the Neapolitans, and inveſted the city by ſea and land. The walls were furiouſly battered, and part of them being beat down, Sico prepared for a general aſſault. Stephen, then duke of Naples, pretended to ſubmit; but intreated Sico to put off his entry till the morning, and in the mean time ſent his mother and his two children as hoſtages. Sico conſented, but next morning found the breach built up, and the Neapolitans prepare for their defence. Exaſperated at their perfidy he renewed his attacks with vigour, but withou ſucceſs; the beſieged defending themſelves wit the utmoſt obſtinacy. At laſt they conſented t a peace, on condition that the Neapolitans ſhoul pay an annual tribute to the princes of Benevento and conſent to the tranſporting of the body of S Januarius from his church without the walls o Naples to Benevento. Theſe terms being ratified Sico returned to Benevento; but ſoon after renewed the war, under pretence that the Neapolitans had neglected to pay the ſtipulated ſum, and hoſtilities continued till his death, which happened in 833. Sico was ſucceeded in the government of Benevento by his ſon Sicardo, who ha married the daughter of Dauferius; and being influenced by Roffrid, his wife's brother, oppreſſed his ſubjects to ſuch a degree that they conſpired againſt his life. He beſieged Naples with a powerful army, and took poſſeſſion of Acerra and Atella. But Bonus, the Neapolitan duke, defende himſelf ſo vigorouſly, that the Beneventans wer obliged to retire, and even to abandon Acerra and Atella. At laſt Sicardo agreed to a peace fo five years, on the interceſſion of the emperor Lothaire, in 836, after the war had continued with very little intermiſſion, for 16 years. Soo after this peace the Saracens landed at Brindiſi, and having taken it, ravaged all the neighbouring country. Sicardo marched againſt them with a numerons army; but the Saracens having dug a great number of ditches which they ſlightly covered over, drew the Beneventans in among them, whereby they were repulſed with great loſs However, Sicardo, having reinforced his army, marched again to attack them; but the Saracens pillaged and burnt Brindiſi, and retired with their booty and many captives to Sicily. Sicardo then attacked Amalfi, levelled its walls, carried off its wealth, and the body of its tutelar ſaint, Triphemen, and tranſported many of its inhabitants to Salerno. During theſe tranſactions, Sicardo had tyrannized over his ſubjects in ſuch a manner, that he became intolerable. His nobles were at laſt provoked to conſpire againſt him; and, in 839, he was murdered in his tent.

(6.) **NAPLES, HISTORY OF, FROM SICARDO'S DEATH TILL THAT OF THE EMP. CHARLES THE BALD.** On the death of Sicardo, Radelchis, his ſecretary or treaſures, was unanimouſly elected prince of Benevento; but Siconolphus, the king's brother, having regained his liberty, for a great party againſt the new prince. Radel oppoſed him with a formidable army; an moſt ruinous civil war enſued. Both parties turns called in the Saracens, and theſe treache allies acted ſometimes againſt the one, and times againſt the other; or turned their againſt both, as ſeemed moſt ſuitable to their intereſt. Thus the war continued with the moſt animoſity for 12 years, during which the principality was almoſt entirely ruined; laſt the emperor Lewis II. interpoſed, and obli the competitors to agree to a partition of principality. By this treaty, Radelchis promi to acknowledge Siconolphus and his ſucceſſors lawful princes of Salerno, which was declared

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contain Tarento, Latiniano, Caſſano, Coſſenzo, Laino, Lucania, Conſia, Montella, Rota, Salerno, arno, Ciraterium, Furculo, Capua, Feano, Sora, nd the half of the gaſtaldate of Acerenza, where it oins Latiano and Conſia. The boundary betwixt enevento and Capua was fixed at St Angelo and erros; Alli Peregrini was made the boundary etwixt Benevento and Salerno, and Staffilo be- wixt Benevento and Conſia. The monaſteries of onte Cailino and St Vincent were declared to e immediately under the protection of the em- eror; both princes ſtipulated that no hoſtilities hould be committed by either againſt the ſub- ects of each other, and promiſed to join their orces to drive out the Saracens. Soon after this acification, however, both Radelchis and Sico- olphus died; the former appointing his ſon Ra- eclare to ſucceed him, and the latter leaving an nfant ſon, Sico, to the care of his god-father eter. The war with the Saracens proved very nſucceſsful; neither the united efforts of the rinces, nor of the emperor Lewis himſelf, being ble to expel the infidels; and, in 854, Adelgiſe e 2d ſon of Radelchis, who had now ſucceeded, the death of his brother Radelcar, to the prin- pality of Benevento, was obliged to pay them annual ſubſidy. Two years after, Lando, unt of Capua, revolted from the prince of Sa- rno, and could not be reduced. In the mean me, Sico, the lawful prince of Salerno, had been oiſoned by Count Lando, and the principality urped by Ademarius, the ſon of Peter above entioned; but in 861 Ademarius was ſeized d impriſoned by Gauferius, the ſon of Daufe- us formerly mentioned. This was occaſioned his cruelty and rapaciouſneſs, which entirely enated the hearts of his ſubjects from him, and couraged Gauferius to become the head of the nſpirators. The Saracens in the mean time mmitted terrible ravages throughout the Bene- ntan territories; which at laſt obliged Adelgiſe enter into an alliance with Gauferius, and both gether ſent an embaſſy to the emperor Lewis, queſting him to take them under his protec- n. About the ſame time an embaſſy arrived om Conſtantinople, propoſing a junction of the ces of the eaſtern and weſtern empires againſt infidels; upon which Lewis gave orders for embling a formidable army. But in the mean e Adelgiſe made peace with the Saracens; and n encouraged them in their incurſions into the chies of Capua and Naples, which they ravaged a moſt barbarous manner. The Neapolitans, conjunction with the duke of Spoleto and the unt of Marſi, oppoſed them; but being defeat- they continued their ravages with redoubled y, and retired to Bari, their capital, with an menſe booty. In 866 Lewis arrived at Sora h his army; and having marched to Capua, s there joined by Landulph, the biſhop and nt, with a body of Capuans; but Landulph n after perſuading his countrymen to deſert, wis marched againſt that city, which he took er a ſiege of three months, and almoſt totally troyed. In the end of the year he was joined Gauferius with his troops, having ordered the s of Ademarius to be put out in his abſence. wis confirmed him in the principality, and marched with his army to Benevento, where Adelgiſe received him with great reſpect. Having reduced ſome places belonging to the Saracens, Lewis inveſted Bari; but as the Saracens received continual ſupplies from their countrymen in Sicily, and beſides were protected by the Neapolitans, he could not reduce the place till 871, though he had received conſiderable aſſiſtance from his brother Lotharius, and the Greek emperor had ſent him a fleet of 200 ſail. The expulſion of the Saracens was completed the ſame year by the taking of Tarento; after which the emperor returned with great glory to Benevento, reſolving next to carry his arms into Sicily, and expel the infidels from thence alſo. But his ſchemes of farther conqueſts were fruſtrated by a quarrel between him and Adelgiſe. The latter, pretending to have been inſulted by the empreſs, and oppreſſed by the French, ſeized the emperor, and kept him priſoner for 40 days. But a body of Saracens having arrived from Africa, and laid ſiege to Salerno with an army of 30,000 men, ravaging the neighbouring country with the utmoſt barbarity, Adelgiſe was ſo much alarmed, that he ſet the emperor at liberty, after taking his oath that he would not revenge the inſult, and that he would never return to Benevento. Lewis, having then joined his forces to thoſe of the prince of Salerno, obliged the Saracens to raiſe the ſiege of Salerno; but though they were prevented from taking that city, they entirely deſolated Calabria. In 873 Lewis went to Benevento, and was reconciled to Adelgiſe, but ſoon after died; and the Saracens continued their ravages to ſuch a degree that the inhabitants of Bari delivered up their city to the Greeks. At the ſame time the Salernitans, Neapolitans, Cajetans, and Amalfitans, having made peace with the Saracens, were compelled to agree to their propoſal of invading the territories of the Roman pontiff. His holineſs exerted himſelf to the utmoſt, both with ſpiritual and temporal weapons, to defend his right; but was at laſt obliged to become tributary to the infidels. In the mean time all Italy was thrown into the greateſt confuſion by the death of Charles the Bald, who was poiſoned at Pavia, as he was coming to the pope's aſſiſtance. Sergius, duke of Naples, continued a firm friend to the infidels, notwithſtanding the thunder of a papal excommunication; but happening to fall into the hands of his brother Athanaſius, biſhop of Naples, that prelate put out his eyes, and ſent him priſoner to Rome.

(7.) NAPLES, HISTORY OF, FROM THE EMPEROR CHARLES'S DEATH TILL THE CONQUEST OF SICILY. In 876 Adelgiſe was murdered by two of his nephews; one of whom, by name *Caideris*, ſeized the principality. About the ſame time Landulph, biſhop of Capua dying, a civil war enſued among his children. The princes of Salerno and Benevento, the duke of Spoleto, and Gregory, the Greek governor of Bari and Otranto, took different ſides in the quarrel; the new biſhop was expelled, and his brother, though a layman, choſen, and even conſecrated by the pope, who wrote to Gauferius, forbidding him to attack Capua under pain of excommunication. But though Gauferius was, in general, obedient to the pope's commands, he proved refractory in this particular, and laid ſiege to Capua for two years ſucceſſively. Thus the Capuan territories were reduced to the moſt miſerable ſituation; being obliged to maintain at the ſame time the armies of the prince of Benevento and the duke of Spoleto. The Saracens, in the mean time, ſtrengthened themſelves in Italy; and Athanaſius entered into an alliance with them, and ravaged the territories of the pope, as well as thoſe of Benevento and Spoleto, plundering all the churches, monaſteries, towns, and villages, through which they paſſed. Mean time the prince of Salerno was obliged to grant them a ſettlement near his capital; the duke of Gaeta invited them to his aſſiſtance, being oppreſſed by the count of Capua; and even the pope was obliged to make peace with them, and to grant them a ſettlement on the N. ſide of Carigliano, where they fortified themſelves, and continued for more than 40 years. To put a ſtop to the confuſion in Italy, the pope reſtored the biſhop of Capua, but allowed his brother to reſide in the city, and govern one half of the dioceſe; but, notwithſtanding this partition, the civil diſſenſions continued with the utmoſt violence, the neareſt relations murdering or baniſhing each other, according as the fortune of the one or the other prevailed. Athanaſius, notwithſtanding the pope's remonſtrances, continued his alliance with the Saracens; in conjunction with whom he ravaged the territory of Benevento, and fomented the diviſions in Capua, in hopes of being able to conquer it. At laſt the pope excommunicated him, which attached him to the Saracens more than ever; inſomuch that he invited Suchaim, king of the Saracens in Sicily, to come over and command a great body of his countrymen who had ſettled at the foot of Mount Veſuvius. Suchaim accepted the invitation, but immediately turned his arms againſt Athanaſius; allowing his troops to live at diſcretion in the territory of Naples, where they raviſhed the women and plundered the inhabitants. Theſe calamities being, by the ſuperſtitious Neapolitans, imagined to be conſequences of the excommunication, they perſuaded the prelate to renounce all connection with the infidels. Athanaſius accordingly concluded an alliance with Guimarius prince of Salerno, whereby the Saracens were obliged to quit the Neapolitan territories, and retire to Agropoli. Athanaſius then directed his force againſt Capua, of which he made himſelf maſter in 882. The Saracens, however, ſtill continued their incurſions, and deſolated ſeveral provinces. Theſe confuſions continued for a long time; during which the Greeks made themſelves maſters of Benevento, in 892, and had well nigh become maſters alſo of Salerno; but in 896 they were totally expelled by the biſhop. In 915 the Saracens received a complete overthrow at Carigliano. But a new body ſoon arrived from Africa, and inveſted the ſea-coaſts. A war alſo enſued between Landulph and the Greeks; which concluded diſadvantageouſly for the former, who was obliged to ſubmit in 943. In 961 Otho the Great, emperor of Germany, invaded Italy with a powerful army againſt Berengarius III. and, marching to Rome, received the imperial crown from the hands of the Pope. In 964 he erected Capua into a principality, and received homage from the other princes of Lombardy. After various hoſtilities a treaty was concluded, and the young princeſs Theophania married to Otho's ſon, afterwards emperor. All this time the Saracens continued their incurſions; and the Greeks had gained ground ſo much, that they were now in poſſeſſion of two thirds of the kingdom of Naples; but in 1002 or 1003, the **Normans** began to be remarkable in Italy. They had, about a century before, embraced Chriſtianity, and become very zealous in all the ſuperſtitions then practiſed. They were particularly zealous in viſiting ſacred places, eſpecially Rome, and the holy ſepulchre at Jeruſalem; and being of a very martial diſpoſition, they forced through great bodies of Greeks and Saracens who oppoſed their paſſage. About this time 100 of theſe Normans, returning from Jeruſalem by ſea, landed at Salerno, in the habit of pilgrims, where they were honourably received by Guimarius. During their reſidence at Salerno, a great body of Saracens landed, and inveſted the city. Guimarius, not being in a condition to oppoſe the invaders by force, was preparing to pay them a large ſum of money, when the Normans propoſed to attack them; and, having got arms and horſes, they engaged the infidels with ſuch bravery, that they entirely defeated them, and obliged them to fly to their ſhips. By this victory Guimarius was filled with ſuch admiration of the valour of these ſtrangers, that he entreated them to remain in his country; offering them lands and the moſt honourable employments; but not being able to prevail with them to ſtay in Italy, or even accept of his preſents, at their departure he ſent ſome ambaſſadors with them to Normandy, in veſſels loaded with exquiſite fruits, rich furniture and horſes, &c. to allure others of the valiant Normans to Italy. This encouraged a Norman chief, named *Oſmund Drengot*, to ſettle in Italy, about 1015. In the mean time the city of Bari had revolted from the Greeks, and choſen one Mello for their leader, whoſe wife and children happened ſoon after to fall into the hands of their enemies, and were ſent priſoners to Conſtantino-. No ſooner, therefore, did Mello hear of the arrival of theſe adventurers, than he engaged th to aſſiſt him; and having drawn together a conſiderable army, defeated the Greeks with gr ſlaughter, and obliged them to abandon th camp. In this engagement the Normans diſtinguiſhed themſelves, and the news of their ſuc ceſs ſoon brought from Normandy an innumerable multitude of their countrymen, with t wives and children. By this reinforcement, M gained two other victories, took many to and obliged the Greeks to abandon a large terri tory; but, in 1019, they were utterly defeat and every thing recovered by the Greeks. T Greek general, Bajanus, continued to go on w ſuch ſurpriſing ſucceſs, that he almoſt entire eſtabliſhed the affairs of his countrymen in I and made a diſtinct province of the weſtern of Puglia, which he called **Capitanata**. great progreſs at laſt alarmed the emperor of G many; and, in 1027, Pandulphus prince of ua made himſelf maſter of Naples; but was bliged to leave it in 1030, by the Normans, who uilt the city of Averſa, which was erected into county. In conſequence of this good fortune, reat numbers of Norman adventurers migrated nto Italy; among whom were William, Drogo, nd Umbert, 3 ſons of Tancred duke of Haute- ille; from whoſe poſterity thoſe princes were eſcended, who conquered the iſland of Sicily om the Saracens, and thus completed the pre- nt kingdom of Naples.

(8.) **Naples, history of, till the mas- acre of the Normans.** In 1040, the Greek mperor Michael Paleologus, to ſecure the affec- on of his fickle ſubjects, undertook the conqueſt f Italy from the Saracens, and for that purpoſe nt a general named *Michael Maniacus* into Sicily. his commander, hearing of the great reputation f the Normans, ſent to Guimarius, prince of alerno, intreating him to grant him ſome of hoſe warriors. The prince, to encourage the ormans to engage in the expedition, promiſed hem ſome additional rewards beſides the empe- or's pay. William, Drogo, and Umbert, ac- ordingly marched from Salerno with 300 of their ountrymen; and paſſing over into Sicily, diſ- nguiſhed themſelves remarkably in the conqueſt f that iſland. Maniacus acknowledged, that e recovery of Meſſina was chiefly owing to their alour; and William with his Normans gained a omplete victory over the Saracens before Syra- uſe, where he killed the governor in ſingle com- at. Maniacus made himſelf maſter of Syracuſe, nd almoſt entirely reduced the whole iſland; ut being accuſed of treaſon, was next year car- ied priſoner to Conſtantinople. His ſucceſſor oceanus quickly loſt the whole iſland except eſſina, and treated his Norman auxiliaries with e utmoſt contempt. He would not allow them ny ſhare of the booty; and even cauſed one Ar- oin, a noble Lombard, an aſſociate and inter- reter of the Normans, to be whipped round the amp, becauſe he had refuſed to part with the orſe of a Saracen whom he had ſlain in ſingle ombat. The conſequences of this tyrannical be- aviour were fatal to the Greeks. Ardoin ſoon af- er obtained leave to return to Italy, under pre- ence of a vow, and all the Normans embarked at ight along with him; but inſtead of going to ome, Ardoin went immediately to Averſa, where e perſuaded count Rainulphus, ſovereign of that rovince, to join with him in attacking the Greek rovinces in Italy. Rainulphus approved of the eme, and raiſed 300 ſoldiers, whom he ſent nder 12 officers, to join the other Normans un- er the ſons of Tancred; and made an agreement ith Ardoin, that the conqueſts ſhould be equal- divided among the chief leaders. Their firſt terpriſe was the reduction of Melphis, one of e ſtrongeſt cities in Puglia, which ſurrendered; nd they increaſed its fortifications ſo much, that became impregnable. Soon after this they took enoſa, Aſcoli, and Lavello, with little oppoſi- on. Doceanus, alarmed with the rapidity of their onqueſts, immediately left Sicily, and marched ith his army into Puglia, where he attacked he invaders near the river Olivento; but after a erce engagement, he was obliged to retire with conſiderable loſs. The Greeks were ſoon after defeated a 2d time at Cannæ; and in a 3d engagement, near Ofanto, the army of Doceanus was entirely routed, and himſelf obliged to fly to Bari. On this he was ordered to return to his command in Sicily, and another general was ſent with an army into Puglia; but he had no better ſucceſs; for his army was defeated in an engagement with the Normans, and himſelf taken priſoner. Atenulphus, brother to one of the princes of Benevento, on whom the Normans had conferred the chief command, ſet at liberty the captive general without conſulting them, on receiving from him a conſiderable ſum of money. With this the Normans were ſo much diſpleaſed, that they deprived Atenulphus of his command, and beſtowed it on Argyrus, ſon to the late Mello, who had eſcaped from Conſtantinople, and now aſſumed the title of *duke and prince of Italy*. Before this alſo, Maniacus had returned to Italy; and to ſtrike terror into the revolted cities, had executed a number of people of all ages and ſexes with great inhumanity. Soon after this he openly rebelled againſt the Greek emperor Conſtantine XI. and prevailed upon his own army to proclaim him emperor, beginning hoſtilities immediately againſt the Greek cities. But Argyrus took Giovenazzo and beſieged Trani, and ſoon after beſieged Maniacus himſelf in Tarento; who being afraid of falling into the hands of the Normans, fled to Otranto, and thence to Bulgaria, where, being defeated by one of the emperor's generals, he was taken priſoner and beheaded. The Normans having now conquered the greateſt part of Puglia, proceeded to make a diviſion of their conqueſt, in which, after each commander had got his ſhare, the city of Melfis was left common to all, and appropriated as a place for aſſembling to conſult about the moſt important affairs of the nation. Argyrus alone was neglected in this diviſion; but he, having gained the favour of the emperor by expelling Maniacus from Italy, was by him created duke of Bari, on purpoſe to check the power of the Normans, with the title of *prince and duke of Puglia*. The Normans, however, were too powerful, and behaved with great inſolence to the neighbouring princes; but as they could not be expelled by force, and were confirmed in their conqueſts by Henry II. emperor of Germany in 1047, the Greek emperor attempted to get rid of them, by ſending Argyrus with large ſums of money to bribe them to enter into his ſervice againſt the Perſians. But they replied, that they were reſolved not to leave Italy unleſs they were expelled; upon which Argyrus bribed the Puglians to aſſaſſinate theſe invaders. This brought on a maſſacre, in which greater numbers of Normans periſhed than had fallen in all the late wars. Argyrus attempted to take advantage of the confuſion produced by it, but was defeated; after which he had recourſe to Pope Leo, beſeeching him to deliver Italy from theſe cruel tyrants; but the pope himſelf was defeated and taken priſoner; and, in conſequence of the reſpect ſhowed him by the Normans, granted them all the conqueſts they had made or ſhould make in Calabria and Sicily.

(9.) **Naples, history of, to the maſſacre of the French.** Soon after this, the Norman power became extremely formidable; the famous Robert Guiſcard aſcended the throne in 1056. He made great progreſs in the conqueſt of Calabria, and reduced moſt of the cities which held for the Greeks in theſe parts. About the ſame time the counts of Capua were expelled from their territory; and the abbot Deſiderius mentions his having ſeen the children of Landulphus V. the laſt count, begging. The pope, alarmed by theſe conqueſts, excommunicated the Normans in a body, pretending that they had ſeized ſome of the territories belonging to the church; but, by the ſubmiſſion of Robert, he not only was perſuaded to take off the ſentence of excommunication, but to inveſt him with the provinces of Apulia, Calabria, and Sicily. After this he continued the war againſt the Greeks with great ſucceſs. In 1071, in conjunction with his brother Roger, he conquered Sicily, and gave the inveſtiture of the iſland to him, with the title of *count*, reſerving to himſelf only the half of Palermo, Meſſina, and the valley of Demona. The like ſucceſs attended his arms againſt Salerno in 1074; and in 1080, he received a 2d time the inveſtiture of all his dominions. In 1081 he undertook an expedition againſt the Greeks; and though the emperor was aſſiſted by a Venetian fleet, Robert made himſelf maſter of Corfu, reduced Durazzo, and great part of Romania; inſomuch that by the ſucceſs of his arms, and his near approach to Conſtantinople, he ſtruck an univerſal terror among the Greeks. But while Robert was thus extending his conqueſts, he was alarmed by the news of a formidable rebellion in Italy, and that the emperor Henry had taken Rome, and ſhut up the Pope in the caſtle of St Angelo. Robert therefore, leaving the command of the army to his ſon Boemund, returned to Italy, where he diſperſed the rebels, and releaſed the pope, while his ſon gained a conſiderable victory over the Greeks. After this Robert made great preparations for another expedition into Greece, to ſecond his ſon Boemund. Alexius Comnenus, who was declared emperor by the Greek army, being aſſiſted by the Venetian fleet, endeavoured to oppoſe his paſſage; but was defeated, with the loſs of many galleys. But a final ſtop was now put to his enterpriſes by his death, which happened in 1085. Though the power of the Normans was thus thoroughly eſtabliſhed in Italy and Sicily, and though the prince of Benevento was in 1130 inveſted by the Pope, with the title of king of Sicily; yet in conſequence of the diſſenſions among themſelves, they were obliged to ſubmit to the emperor in 1195. By him the Sicilians were treated with ſo great cruelty, that the empreſs Conſtantia was induced to conſpire againſt him in 1197, took him priſoner, and releaſed him only on condition of his ſending off his army immediately for the Holy Land. This was complied with; but the emperor did not long ſurvive the reconciliation, being poiſoned, as was ſuppoſed, by order of the empreſs. In 1254 the pope claimed the kingdom as a fief devolved on the church, in conſequence of a ſentence of depoſition pronounced againſt king Frederic at the council of Lyons; and, 1263, the kingdom was, in conſequence of this right, conferred on Charles count of Anjou. After much contention and bloodſhed, the French thus became maſters of Sicily and Naples. Their government was inſupportably tyrannical; and at the ſame time the haughtineſs of their king ſo provoked the pope, that he reſolved to humble him.—Charles had reſolved on an expedition againſt Conſtantinople; and for this purpoſe had fitted out a fleet of 100 galleys, 30 large ſhips, 200 tranſports, beſides many other ſmaller veſſels, on board of which he intended to embark 10,000 horſe, and a numerous army of foot. This formidable armament greatly alarmed the emperor Michael Paleologus, for which reaſon he entered into a negociation with John Di Procida, a noble Salernitan, lord of the iſle of Procida in the bay of Naples, who had formed a ſcheme for a general revolt in the iſland of Sicily. John, though a nobleman, was alſo a phyſician, and had been counſellor to two former princes, and even to king Charles himſelf; but being ſtripped of his eſtate by the king under pretence of treaſon, and his wife being debauched by the French, he retired to Conſtantia queen of Arragon, where he was created a baron of the kingdom of Valencia, by her huſband king Peter, and Lord of Luzza, Benizzano, and Palma. As he was greatly exaſperated againſt the French, he employed many ſpies both in Puglia and Sicily; and being informed that the Sicilians were totally diſaffected to the French, he came to the iſland in diſguiſe, and concerted a plan with the moſt powerful of the malcontents for a revolution in favour of Conſtantia, though ſhe derived her right only as being the daughter of a former uſurper named MANFRED. Procida then ſet out for Conſtantinople, where, in ſome private conferences with the emperor, he perſuaded him, that the moſt probable means of defeating Charles's ſcheme was by aſſiſting the Spaniards and Sicilian malcontents. Paleologus accordingly granted him a large ſum of money, and on his departure ſent one of his ſecretaries along with him, who, landing in Sicily, had a conference with the chief conſpirators. John, having received letters from them, diſguiſed himſelf in the habit of a Franciſcan, and went to Suriano near Rome. As he knew the enmity which ſubſiſted between the pope and K. Charles, he diſcloſed his deſign to his holineſs; who readily entered into his meaſures, wrote to Peter to haſten his armament, promiſing him the inveſtiture of the iſland as ſoon as he had taken poſſeſſion of it; and, by refuſing the aſſiſtance he had promiſed to Charles, obliged him to delay his expedition. In the beginning of 1280, Procida returned to Arragon, and by ſhowing the letters from the pope and Sicilian barons, prevailed on Peter to embark in his deſign, by aſſuring him of the aſſiſtance of Paleologus. The king of Arragon accordingly prepared a formidable fleet under pretence of invading Africa, and received 20,000 ducats from Charles, to aſſiſt him in his preparations. But while John went on thus ſucceſsfully with his ſcheme, all his meaſures were in danger of being broke by the death of pope Nicholas. The new pope, Martin IV. was entirely in the intereſt of Charles, on whom, in 1281, he conferred the ſenatorial dignity of Rome. Procida, however, ſtill reſolved to proſecute ſcheme; and, leaving Italy, had another conference with the conſpirators in Sicily; after which, he again went to Conſtantinople, and obtained from Paleologus 30,000 ounces of gold, with which he returned to Arragon. The death of Nicholas had damped the ardour of Peter; but, being urged by John, he again renewed his preparations; which alarmed the pope and the king of France; who adviſed Charles to guard againſt an invaſion: but he neglected their advice, being wholly intent on his eaſtern expedition, and encouraged by a revolt which had happened in Greece. To facilitate his expedition, he prevailed on the pope to excommunicate the Greeks, on pretence that they had broken ſome of the articles of union concluded at the council of Lyons a few years before. Peter in the mean time continued his preparations with great diligence, intending to put to ſea the following ſummer. Procida had returned to Palermo, to wait for a favourable opportunity of putting his deſign in execution, which was ſoon afforded him by the French. On Eaſter Monday, March 30th, 1282, the chief conſpirators had aſſembled at Palermo; and, after dinner, both the Palermitans and French went in a grand proceſſion to the Church of Monreal, about three miles without the city. While they were ſporting in the fields, a bride happened to paſs by with her train, who being obſerved by one Drochet a Frenchman, he ran to her, and began to uſe her rudely, under pretence of ſearching for arms. A young Sicilian, exaſperated at this affront, ſtabbed him with his own ſword; and a tumult enſuing, 200 French were immediately murdered. The enraged populace then ran to the city, crying out, "Let the French die;" and, without diſtinction of age or ſex, ſlaughtered all of that nation they could find, even ſuch as had fled to the churches. The conſpirators then left Palermo, and excited the inhabitants to murder the French all over the iſland, excepting in Meſſina, which city at firſt refuſed to be concerned in the revolt. But, being invited by the Palermitans to throw off the French yoke, a few weeks after, the citizens in a tumultuous manner deſtroyed ſome of the French; and pulling down the arms of K. Charles, and erecting thoſe of the city, choſe one Baldwin for their governor, who ſaved the remaining French from the fury of the populace, and allowed them to tranſport themſelves, with their wives and children, to Italy. The number murdered on this occaſion is ſaid to have been 8000.

(10.) NAPLES, HISTORY OF, TO THE MURDER OF MASSANIELLO. Immediately after this maſſacre, the Sicilians offered their allegiance to Peter king of Arragon; who accepted of the invitation, and landed with his forces at Trapani. From thence he went to Palermo, where he was crowned king of Sicily with great ſolemnity, and Charles left the iſland with precipitation. The day after he landed his army in Italy, the Arragonian fleet arrived, took 29 of his galleys, and the next day burnt 80 tranſports in preſence of his army. Soon after this Charles ſent an embaſſy to Peter, accuſing him of perfidy, in invading his dominions in time of peace; and, according to ſome, challenged him at the ſame time to decide the matter by ſingle combat: but Peter determined to employ more effectual means in ſupport of his pretenſions; and therefore puſhed on his operations moſt vigorouſly, while his adverſary trifled away his time: and thus he at laſt became maſter of the kingdom; which, however, he did not long enjoy, dying about the end of 1285. By his will, Peter left Arragon to his eldeſt ſon Alphonſus, and Sicily to James his other ſon, who was alſo to ſucceed to the kingdom of Arragon in caſe Alphonſus ſhould die without male iſſue. Accordingly, James was ſolemnly crowned at Palermo, the 2d Feb. 1286. In 1295, however, he deſerted them, and tamely reſigned up his right to Charles, ſon to him above-mentioned. On his reſignation the Sicilians conferred the crown upon his brother Frederic: after which the war continued with great violence till 1303, when a peace was concluded, and the kingdoms of Naples and Sicily formally diſjoined; Frederic being allowed to keep the latter, under the name of *Trinacria*; and Charles being confirmed in the poſſeſſion of the former, which he quietly enjoyed till his death in 1309. Naples contined to be governed by its own kings till the beginning of the 16th century, when the kings of France and Spain contended for the ſovereignty of it. Frederic, then king of Naples, reſigned the ſovereignty to Lewis XII. on being created duke of Anjou, and receiving an annual penſion of 30,000 ducats. But, in 1504, the French were defeated by the Spaniards, and obliged to evacuate the kingdom; and Lewis in 1505 renounced all pretentions to the crown, which hath ſince remained almoſt conſtantly in the hands of the Spaniards. The government of the Spaniards proved no leſs oppreſſive to the Neapolitans than that of others had been. The kings of Spain ſet no bounds to their exactions, and of conſequence the people were loaded with numerous and heavy taxes; the moſt indiſpenſable neceſſaries of life not being exempted. In 1647, a new tax was laid on fruit; which the people looked upon as the moſt grievous oppreſſion, the chief part of their ſubſiſtence, during the ſummer months, being fruit, which in Naples is very plentiful and delicious. The edict for collecting the new duty was no ſooner publiſhed, than the people began to murmur in a tumultuous manner: and when the viceroy came abroad, they ſurrounded his coach, bawling out to have their grievances redreſſed. They were encouraged in their ſedition, by the news that the citizens of Palermo had revolted on account of the impoſition of new duties. The viceroy, therefore, apprehenſive of greater diſorders, began to think of taking off the tax; but thoſe who farmed the tax having bribed ſome of his favourites, he was perſuaded not to aboliſh it. The indignation of the people was now greatly increaſed. The farmers of the revenue, and all thoſe concerned in raiſing the taxes, had incurred the hatred and deteſtation of the people, particularly of Thomas Aniello, commonly called MASSANIELLO, a native of Amalfi, a fiſherman, whoſe wife, having been diſcovered in ſmuggling a ſmall quantity of meal, was impriſoned, and condemned to pay a fine of 100 ducats. Maſſaniello, a few years before, had come to Naples from Amalfi, where his father had been a fiſherman. At this time he was about 24 years of age, and the father of 4 children. He was of a middling ſtature, and an agreeable aſpect; was diſtinguiſhed for his boldneſs, activity, and integrity; and had great influence with his companions, by whom he was beloved and eſteemed. As he was obliged even to ſell his furniture to pay the heavy fine, he had conceived an implacable hatred againſt the farmers of the taxes, and was alſo moved with compaſſion for the miſerable ſtate of the city and kingdom. He, therefore, formed a deſign, with ſome of his companions, to raiſe a tumult in the market-place on the feſtival day of the Carmelites, uſually celebrated about the middle of July, when between 500 and 600 youths entertain the people by a mock fight; one half of them in the character of Turks, defending a wooden caſtle, which is attacked and ſtormed by the other half in the character of Chriſtians. Maſſaniello being appointed captain of one of theſe parties, and one Pione, who was privy to his deſign, commanding the other, for ſeveral weeks before the feſtival they were very diligent in reviewing and training their followers, who were armed with ſticks and reeds: but an unforeſeen accident tempted them to begin their enterpriſe without waiting for the feſtival. On the 7th of July a diſpute happening in the market place betwixt the tax-gatherers and ſome gardeners of Pozzuolo, who had brought ſome figs into the city, whether the buyer or ſeller ſhould pay the duty; after the tumult had continued ſeveral hours, Maſſaniello, who was preſent with his company, excited the mob to pillage the office built in the market for receiving the duty, and to drive away the officers with ſtones. The elect of the people, who, by deciding againſt the gardeners, had increaſed the tumult, ran to the palace and informed the viceroy, who imprudently neglected all means of putting a ſtop to the commotion. Maſſaniello, in the mean time, being joined by great numbers of people, ordered his young troops to ſet fire to all the offices for the taxes through the city: which command being executed with diſpatch, he then conducted them directly to the palace, where the viceroy, inſtead of ordering his Spaniſh and German guards to diſperſe them, encouraged their inſolence by timidly granting their demands. As they ruſhed into the palace in a furious manner, he eſcaped by a private door, and endeavoured to ſave himſelf in *Caſtel del Ovo*; but being overtaken by the rioters in the ſtreets, he was trampled upon by them, and pulled by the hair and whiſkers. However, by throwing ſome handfuls of gold among them, he again eſcaped, and took ſanctuary in a convent of Minims, where, being joined by the Abp. of Naples, cardinal Filomarini, and ſeveral nobles, by their advice he ſigned a billet, by which he aboliſhed all taxes upon proviſions. He likewiſe deſired the cardinal to offer Maſſaniello a penſion of 2400 crowns, who generouſly rejected the bribe; and declared, that if the viceroy would keep his word, he would find them obedient ſubjects. It was now expected that the tumult would ceaſe; but Maſſaniello, upon his return to the market-place, being joined by ſeveral malcontents, among whom were Genuino and one Peronne, who had formerly been a captain of the Sbirri, he was adviſed by them to order the houſes of thoſe concerned in raiſing the tax to be burned: which were accordingly in a few days reduced to aſhes, with all their rich furniture. Maſſaniello being now maſter of the city, and being joined by great numbers of people of deſperate fortunes, he required the viceroy, who had retired to the *Caſtel Nuovo*, to aboliſh all the taxes, and to deliver up the writ of exemption granted by Charles V. This new demand greatly embarraſſed the viceroy; but to appeaſe the people, he drew up a falſe deed in letters of gold, and ſent it to them by their favourite the duke of Matalone, who had before been in confinement. The fraud, however, being diſcovered, the duke was pulled from his horſe and maltreated by the mob, and at length committed priſoner to Peronne. This accident, to the great joy of the viceroy, enraged the people againſt the nobility, ſeveral of whom they killed, burnt the houſes of others, and threatened to extirpate them all. Maſſaniello, in the mean time, tattered and half naked, commanded his followers, who were now well armed, and reckoned about 100,000 men, with a moſt abſolute ſway. He eat and ſlept little, gave his orders with great preciſion and judgment, appeared full of moderation, without ambition or intereſted views. But the duke of Matalone having procured his liberty by bribing Peronne, the viceroy imitated his example, and ſecretly corrupted Genuino to betray his chief. A conſpiracy was accordingly formed againſt Maſſaniello by Matalone and Peronne; the duke, who was equally exaſperated againſt the viceroy, propoſing, that after his death his brother Joſeph ſhould head the rebels. Maſſaniello in the mean time, by means of the cardinal archbiſhop, was negociating a general peace and accommodation; but while both parties were aſſembling in the convent of the Carmelites, the banditti hired by Matalone made an unſucceſsful attempt upon Maſſaniello's life. His followers immediately killed 150 of them. Peronne and Joſeph being diſcovered to be concerned in the conſpiracy, were likewiſe put to death, and the duke with great difficulty eſcaped. Maſſaniello by this conſpiracy was rendered more ſuſpicious and ſevere. He began to abuſe his power by putting ſeveral perſons to death upon ſlight pretences: and, to force the viceroy to an accommodation, he cut off all communication with the caſtles, which were not ſupplied with proviſion and ammunition.—The viceroy likewiſe being afraid leſt the French ſhould take advantage of the commotion, earneſtly deſired to agree to a treaty; which was accordingly concluded on the 5th day of the inſurrection, by the mediation of the archbiſhop. By the treaty it was ſtipulated, that all duties impoſed ſince the time of Charles V. ſhould be aboliſhed; that the writ of exemption granted by that emperor ſhould be delivered to the people; that for the future no new taxes ſhould be impoſed; that the vote of the elect of the people ſhould be equal to the votes of the nobility; that an act of oblivion ſhould be granted for all that was paſt; and that the people ſhould continue in arms under Maſſaniello till the ratification of the treaty by the king.—By this treaty, no leſs than 10,000 perſons, who fattened upon the blood of the public,

lic, were ruined.—The people, when it was ſolemnly publiſhed, manifeſted an extreme joy, believing they had now recovered all their ancient rights and privileges. Maſſaniello, at the deſire of the viceroy, went to the palace to viſit him, accompanied by the archbiſhop, who was obliged to threaten him with excommunication, before he would conſent to lay aſide his rags and aſſume a magnificent dreſs. He was received by the duke with the greateſt demonſtrations of reſpect, while the ducheſs entertained his wife, and preſented her with a robe of cloth of ſilver, and ſome jewels.—The viceroy, to preſerve ſome ſhadow of authority, appointed him captain-general; and at his departure made him a preſent of a golden chain of great value, which with great difficulty he was prevailed upon to accept; but yielded at length to the entreaties of the cardinal. Next day, in conſequence of the commiſſion granted him by the viceroy, he began to exerciſe all the functions of ſovereign authority: and having cauſed a ſcaffold to be erected in one of the ſtreets, and ſeveral gibbets, he judged all crimes, whether civil or military, in the laſt reſort; and ordered the guilty to be immediately put to death, which was the puniſhment he aſſigned to all offences. Though he neglected all forms of law, and even frequently judged by phyſiognomy, yet he is ſaid not to have overlooked any criminal, or puniſhed any innocent perſon. His grandeur and proſperity was of very ſhort continuance; for his mind becoming diſtracted and delirious for two or three days, he committed many extravagant actions; and on the 18th of July, he was aſſaſſinated with the conſent of the viceroy.

(11.) NAPLES, HISTORY OF, UNTIL THE ACCESSION OF THE HOUSE OF BOURBON. The tumult did not end with the death of Maſſaniello; on the contrary, the people now expelled the Spaniards from moſt of the cities throughout the kingdom; and this general inſurrection being the ſubject of diſcourſe at Rome, the duke of Guiſe, who happened then to be at the pope's court, took the opportunity, at the inſtigation of his holineſs, to offer his ſervice to the Neapolitans againſt the Spaniards. The duke was prompted by his ambition to engage in this enterpriſe, eſpecially as he himſelf had ſome diſtant pretenſions to the crown. The Spaniards in the mean time made a vigorous attack on the city; but were repulſed by the people, who now formally renounced their allegiance to them. In a ſhort time, however, their city being ſurpriſed by the new viceroy, the count of Oniate, and the duke of Guiſe himſelf taken priſoner, the people returned to their allegiance; and thus all the attempts of the French on Naples were fruſtrated. Since that time the Spaniards continued in peaceable poſſeſſion of the kingdom till 1707, when it was taken from them by prince Eugene. It was formally ceded to the emperor by the treaty of Raſtadt in 1713; but was recovered by the Spaniards in 1734, and in July 1735, Charles, the king of Spain's eldeſt ſon by his 2d queen, was made king of Naples and Sicily. See SICILY and SPAIN.

(12.) NAPLES, HISTORY OF, UNTO THE PRESENT PERIOD. Charles III. by the death of his brother Ferdinand VI. on the 10th Aug. 1759, became king of Spain; and was ſucceeded in the throne of Naples by his 3d ſon, Ferdinand IV. the preſent ſovereign. But in Jan. 1799, he and the royal family were obliged to fly from Naples, and take refuge in Sicily, upon the approach of the French republicans; who, under generals Macdonald and Championet, took the city of Naples on the 24th Jan. over-running the whole country, and proclaimed the kingdom a republic. In February it was divided into 11 departments, and the government new-modelled on the French plan; but within a few weeks, Admiral Nelſon appearing upon the coaſt, the French capitulated, the democratic ſyſtem was overturned, the old monarchy and government reſtored, and the king welcomed back to his throne. But the moſt dreadful cruelties were committed, particularly in Calabria, upon thoſe unfortunate perſons who had favoured the French during the ſhort-lived revolution. The kingdom of Naples is again under French dominion, having been ſeized by Buonaparte, and conferred on his brother Joſeph as king: the legitimate king having again fled to Sicily, where he is maintained by a Britiſh force under Sir John Stuart. In the ſpring of 1808, Buonaparte removed his brother Joſeph to Spain, and raiſed Joachin (Murat) Napoleon to the tributary, and the uſurped throne of Naples, where he ſtill remains, without having been able to annex Sicily to his continental uſurpation. See REVOLUTION.

(13.) NAPLES, INHABITANTS OF. The inhabitants of this country have at all times borne but an indifferent character among other nations. "From the few hints dropped by the claſſic authors, we collect, that the ancient Neapolitans were a race of Epicureans, of a ſoft indolent turn, averſe from martial exerciſes, paſſionately fond of theatrical amuſements and muſic, expert in all the refined arts that adminiſter to the caprices of luxury, extravagant in their expreſſions and geſtures, and dupes to various ſorts of ſuperſtition. If we make allowance for a quantity of northern blood which has joined the original Grecian ſtream, and imparted a roughneſs not yet worn off by the mildneſs of the climate, we ſhall find the modern Neapolitans very like the ancient. Proviſions being here plentiful and cheap, the lower claſs of people work but little. Their delight is to baſk in the ſun and do nothing. Perſons of a middle rank frequent places of public reſort; and very few of any rank attend to their proper buſineſs with the zeal and activity we meet with in the profeſſional men of colder countries. Gluttony is a predominant vice, while inſtances of ebriety are comparatively rare. In the female ſex, the paſſion for finery is almoſt ſuperior to every other; and, though chaſtity is not the characteriſtic virtue of the country, Mr Swinburne doubts whether a Neapolitan woman would not nine times out of ten prefer a preſent to a lover. That furious jealouſy for which the nation was once ſo remarkable is now greatly abated. The breach of the conjugal vow ſometimes occaſions quarrels and aſſaſſinations among people of an inferior ſtation; and in the metropolis, aſſaſſinations are often perpetrated from much leſs cogent motives. Of theſe vices, many are doubtleſs owing to that ſlavery and oppreſſion under which they groan, and to a radical defect in the adminiſtration of juſtice, though the kingdom is divided into 12 provinces.

(14.) **NAPLES, KING, COUNCILS, &c. OF.** The king of Naples, or rather of the *two Sicilies*, is an hereditary monarch. The high colleges are the council of ſtate, the privy council, the treaſury, the Sicily council, the council of war, &c. This kingdom is a papal fief; and the king, in acknowledgment of the pope's feudal right, ſends him every year a white palfry, and a purſe of 6000 ducats. The title of the king's eldeſt ſon is *prince of Calabria*.

(15.) **NAPLES, MILITARY FORCE OF.** The military force of this kingdom is ſaid to conſiſt of about 30,000 men, of which the Swiſs regiments are the beſt. As to the marine, it conſiſts of a few galleys. The only order is that of St Januarius, which was inſtituted by K. Charles in the year 1738.

(16.) **NAPLES, MOUNTAINS OF.** The principal mountains are thoſe of the APPENINES, which traverſe it from S. to N. and VESUVIUS, which is well known as a noted volcano. (See theſe articles.) The ſide of this mountain next the ſea yields wine, particularly the two famed wines called *Vino* and *Lachrymæ Chriſti*.

(17.) **NAPLES, NOBILITY OF.** The number of the high and low nobility is very great. "I am aſſured (ſays Dr Moore) that the king of Naples counts among his ſubjects 100 perſons with the title of prince, and a ſtill greater number with that of duke. Six or ſeven of theſe have eſtates which produce from 10 to 12 or 13,000l. a year; a conſiderable number have fortunes of about half that value; and the annual revenue of many is not above 1000l. or 2000l. The inferior orders of the nobility are much poorer. Many counts and marquiſſes have not above 300l. or 400l. a year of paternal eſtate; many have ſtill leſs; and not a few enjoy the title without any eſtate whatever. Theſe nobles, however, are exceſſively fond of ſplendor and ſhow, which appears in the brilliancy of their equipages, the number of their attendants, the richneſs of their dreſs, and the grandeur of their titles. The fineſt carriages are painted, gilt, varniſhed, and lined, in a richer and more beautiful manner than has yet become faſhionable either in England or in France. They are often drawn by ſix and ſometimes by eight horſes. Before the carriage, it is the mode to have two running footmen, and behind 3 or 4 ſervants in the richeſt liveries. The ladies and gentlemen within the coaches glitter in all the brilliancy of lace, embroidery, and jewels. This finery is not confined to the perſons within and without the coaches: it is extended to the horſes, whoſe heads, manes, and tails, are ornamented with the rareſt plumage, and ſet off with ribbons and artificial flowers." The hereditary juriſdiction of the nobles over their vaſſals ſubſiſts in the full rigour of the feudal government. The peaſants therefore are poor; and it depends entirely on the perſonal character of the maſter, whether their poverty be not the leaſt of their grievances. As this power is too often abuſed, the importance of the nobility depends in a great meaſure on the favour of the king, who, under pretence of any offence, can confine then to their eſtates, or impriſon them at pleaſure; and he has little to fear from their reſentment.

(18.) **NAPLES, POPULATION OF.** The total number of inhabitants in the city alone are eſtimated at about 400,000: of whom about 10,000 are prieſts, monks, and nuns; 8000 lawyers, and 30, or 40,000 lazzaronis. Of the population of the whole kingdom we have met with no calculation.

(19.) **NAPLES, PROVINCES OF.** This kingdom was divided into 12 provinces by the emperor Frederick II, viz. Lavora, Principato Citra and Ultra, Capitanata, Moliſe, Abruzzo Citro and Ultra, Bari, Otranto, Baſilicato, and Calabria Citra and Ultra. See theſe articles in their order.

(20.) **NAPLES, REVENUE OF.** The revenue is generally computed at 3,000,000 of crowns; but, as Mr Addiſon obſerves, there is no country in Europe which pays greater taxes, and where, at the ſame time, the public is leſs the better for them, moſt of them going to enrich private perſons, to whom they are mortgaged.

(21.) **NAPLES, STATE OF RELIGION IN.** Religion is on a very bad footing here. The number of convents and monaſteries is aſtoniſhing. The clergy and convents poſſeſs two thirds of the kingdom; nay, ſome maintain, that were the kingdom divided into 5 parts, 4 would be found in the hands of the church. Notwithſtanding this power and influence of the clergy, they have not been able to get the inquiſition eſtabliſhed. In 1731 meaſures were taken for leſſening the number of convents. The papal bulls cannot be made public without the king's permiſſion; nor are Proteſtants compelled to kneel in the churches, or at meeting the hoſt; and in Lent they can very eaſily procure fleſh. In 1740, the Jews were allowed to ſettle in the kingdom during the term of 50 years, and ſeveral privileges were granted them during that period; at the expiration of which, the grant was ſuppoſed to be renewed, unleſs they were expreſsly ordered to quit the country.

(II.) **NAPLES**, anciently called PARTHENOPE, afterwards NEAPOLIS, the capital of the above kingdom, lies in the province of *Lavora*, which is the richeſt and beſt inhabited of the whole kingdom, and comprehends a part of the ancient Campania Felix. This city is fabled to owe its foundation to the ſyren, PARTHENOPE, and to have received its ancient name from her. It is the firſt for neatneſs, and the 2d for extent, of all the cities in Italy. It was formerly a place of ſtrength; but its walls being of no real defence, its liberty depends upon the force of its armies. It is moſt advantageouſly ſituated, having a delicious country on one ſide, and a noble bay of the Mediterranean on the other, with an excellent harbour. The circumference, including the ſuburbs, is not leſs than 18 Italian miles. The houſes are of ſtone, flat-roofed, and generally lofty and uniform; but many of them have balconies, with lattice windows. The ſtreets are well paved; but they are not lighted at night, and in the day-time are disfigured, in many places, by ſtalls, on which proviſions are expoſed to ſale. Here are many fine churches, convents, fountains, and palaces of the nobility, moſt of whom conſtantly reſide here. It is uſual to walk on the tops of the houſes in the evenings, to breathe the cool air, after a hot ſultry day. The climate is ſo mild and warm, even in winter, that plenty of green peaſe, artichokes, aſparagus, and other vegetables, may be had ſo early as the beginning of the year, and even all winter. This city ſwarms with monks and nuns to ſuch a degree, that there are 19 convents of Dominicans alone, 18 of Franciſcans, 8 of Auguſtines, and an equal proportion of the reſt. The magnificence of many of the churches exceeds imagination. In a cloiſter of the Carthuſian monaſtery is a crucifix, ſaid to be done by Michael Angelo, of inimitable workmanſhip. To repel hoſtile attempts by ſea, Naples has on the W. the Caſtel del Uovo, a confuſed pile of ancient buildings, and ſome modern batteries. The rock upon which this fortreſs ſtands was originally called *Megara*, then *Lucullanum*, and was conſidered as a place of ſtrength ſo early as the year 475. Along the line of the ſhore towards the E. are ſome batteries on the points of land, the baſtions of the arſenal, and above it the lofty wall of the Caſtel Nuovo. This laſt fortreſs has been the uſual refuge of the ſovereigns and viceroys in all civil wars and tumults; for which reaſon they have long fixed their reſidence near its walls. A block-houſe and batteries defend the mouth of the harbour, and at the eaſtern extremity of the town is the Torrione de Carmine, better known by the figure it made in Maſſaniello's rebellion than by its extent or military ſtrength. The caſtle of Saint Elmo commands Naples in every direction, and is calculated rather to awe the citizens than to defend them from foreign invaders. The city is indeed far from being ſecure againſt a bombardment; for the ſea is ſo deep, that a large veſſel may come up to the very mole in defiance of the block-houſe and batteries, &c. The bay is one of the fineſt in the world, being almoſt of a round figure, of about 30 miles in diameter, and three parts of it ſheltered with a noble circuit of woods and mountains. The city ſtands in the boſom of this bay, in as pleaſant a ſituation, perhaps, as in the world. Mr Keyſler ſays, they reckon about 18,000 *donne libere*, or courtezans in the city, and Dr Moore computes the number of *lazzaroni* or blackguards at above 30,000. The greater part of theſe wretches have no dwelling-houſes, but ſleep every night under porticos, piazzas, or any kind of ſhelter they can find. Thoſe of them who have wives and children, live in the ſuburbs of Naples near Peuſilippo, in huts, or in caverns or chambers dug out of that mountain. They are a lazy, licentious, and turbulent ſet of people, as indeed the greater number of the rabble are, who prefer begging or robbing, or running errands, to any fixed permanent employment. Yet there are in Naples ſome flouriſhing manufactures of ſilk ſtockings, ſoap, ſnuff-boxes of tortoiſe-ſhells and the lava of Mount Veſuvius, tables, and ornamental furniture of marble. The city is ſupplied with a vaſt quantity of water, by a very coſtly aqueduct, from the foot of Mount Veſuvius. Mr Addiſon ſays, it is incredible how great a multitude of retainers to the law there are in Naples, who find continual employment from the litigious temper of the inhabitants. There are five piazzas or ſquares in the city, appropriated to the nobility, called *Capuana*, *Nido*, *Montagna*, *Porta*, and *Porta Nova*. Of all the palaces that of the king is the moſt magnificent, and in the beſt ſtyle of architecture The cathedral, though Gothic, is a very grand ſplendid edifice. It is here that the head and blood of St Januarius, the tutelary ſaint of Naples, are kept, the latter in two glaſs or cryſtal vials. The pretended liquefaction of the dried blood, as ſoon as brought near the head of the ſaint, is a thing well known; Mr Addiſon ſays, it is one of the moſt bungling tricks he ever ſaw. (See Januarius.) The harbour is ſpacious, and kept in good repair. It is fortified with a mole, which runs above a quarter of a mile into the ſea, and at the extremity has a high lantern to direct ſhips ſafely into the harbour. Luxury here is reſtrained by ſevere ſumptuary laws, and the women are more cloſely confined than in any other city of Italy. Here is an univerſity and two academies of wits, the one called *Gli Ardenti*, and the other *Gli Otioſi*. The nunnery for ladies of quality is ſaid to be the largeſt in the world, containing no leſs than 350 nuns, beſides ſervants. The Mount of Piety, or the office for advancing money to the poor, on pledges, at a low intereſt, or without any, has an income of upwards of 50,000 ducats. The arſenal is ſaid to contain arms for 50,000 men. The walls of the city conſiſt of hard black quarry ſtones, called *piperno*.—Inſtead of ice, vaſt quantities of ſnow are uſed for cooling their liquors, not ſo much as water being drank without it; ſo that it is ſaid, a ſcarcity of it would as ſoon occaſion a mutiny as a dearth of corn or proviſions. Certain perſons, who farm the monopoly of it from the government, ſupply the city all the year round from a mountain about 18 miles off, at ſo much the pound. In the ſtreets of this city, as every where elſe in Italy, the only lights generally are here and there a lamp before the image or picture of a ſaint. We learn that the ſtreets of Naples were regularly lighted, for the firſt time, on the 16th of December 1806. Naples ſtands 110 miles SE. of Rome, 164 NE. of Palermo in Sicily, 217 SE. of Florence, and 300 from Venice. Lon. 14. 20. E. Lat. 40. 55. N.

* NAPLESS. *adj.* [from *nap*.] Wanting nap; threadbare.—

Were he to ſtand for conſul, ne'er would he
Appear in th' market place, nor on him put
The *napleſs* veſture of humility. *Shak. Cor.*

NAPLOUSE. See Nablous.

(1.) NAPOLI di Malvasia, the capital of the iſland of Malvasia, is ſeated on a promontory, and has a good harbour at the foot of a rock, which is joined to the continent by a long wooden bridge. It was anciently called *Epidaurus*. (See Epidaurus, N° 2.) It lies 40 miles ESE. of Miſitra, and 75 S. of Athens. Lon. 23. 22. E. Lat. 36. 54. N.

(2.) Napoli di Romania, a ſea-port of European Turkey, in the Morea, on a peninſula in the Gulf, N° 3.. The harbour is good and ſpacious, but has a narrow entrance, which admits only one ſhip at a time. It is defended by a ſtrong fort, and inhabited by 60,000 Greek Chriſtians, beſides Jews and Turks, who all follow their own religion, without controul. It was taken by the Turks in 1715; and lies eight miles S. of Argos, 28 S. of Corinth, and 56 SW. of Athens. Lon. 23. 4. E. Lat. 37. 39. N.

(3.) NAPOLI, GULF OF, a bay of the Mediterranean, on the coaſt of the two Napolis.

* NAPPINESS. *n. ſ.* [from *nappy.*] The quality of having a nap.

* NAPPY. *adj.* [from *nap.* Mr *Lye* derives it from *nappe*, Saxon, a cup.] Frothy; ſpumy; from *nap;* whence apples and ale are called lamb's wool.—

With *nappy* beer I to the barn repair'd. *Gay.*

* NAPTAKING. *n. ſ.* [*nap* and *take.*] Surpriſe; ſeizure on a ſudden; unexpected onſet, like that made on men aſleep.—*Naptakings*, aſſaults, ſpoilings, and firings, have, in our forefathers days, between us and France, been common. *Carew.*

NARAGANSETT. See NARRAGANSETT.

NARBARTH, or NARBETH, a town of S. Wales, in Pembrokeſhire, on a hill, with a market on Wedneſday, and an ancient caſtle, 22½ miles W. of Caermarthen, 18 NE. of Pembroke, and 229 W. by N. of London. Lon. 4. 46. W. Lat. 51. 50. N.

NARBO, in ancient geography, a town of the Volcæ Tectoſages, called alſo *Narbo Martius*, from the Legio Marcia, the colony led thither 59 years before the conſulate of Cæſar (*Velleius*), increaſed with a colony of the Decumania or tenth legion by Cæſar. An ancient trading town on the Atax, which runs into the ſea through the Lacus Rubreſus, or Rubrenſis; capital of the Gallia Narbonenſis; ſurnamed *Colonia Julia Paterna*, from Julius Cæſar. Now called NARBONNE.

NARBONNE, an ancient city of France, in the department of Aude, and late province of Lower Languedoc, famous for honey. It is ſeated on a canal cut from the Aude, which being but three miles from the ſea, veſſels come up to it laden with merchandiſe, which renders it a place of ſome trade. It claims the moſt remote antiquity under the Celtic kings, in ages anterior even to the Roman conqueſts, which under theſe latter maſters gave its name to all *Gallia Narbonenſis*, and was a colony of the firſt conſideration; but is now much decayed. It contains about 10,000 inhabitants, of whom three 4ths are prieſts and women. The ſtreets and buildings are mean and ruinous; it has indeed a communication with the Mediterranean, about 9 miles diſtant, by a ſmall river which interſects the place; but the commerce is very limited, and chiefly conſiſts in grain which they export to Cette and Marſeilles. No marks of Roman magnificence remain, except ſeveral inſcriptions. It is divided into the city and the town, which are joined together by a bridge, with houſes on each ſide, in which the richeſt merchants live. There are ſeveral churches and convents, and the metropolitan church has a handſome ſteeple. Lon. 2, 6. E. Lat. 43. 11. N.

NARBOROUGH, an iſland in the S. Pacific Ocean, near the coaſt of Chili, diſcovered by Sir John Narborough. Lon. 76. 12. W. Lat. 45. 12. S.

(I.) NARCISSUS, in fabulous hiſtory, the ſon of the river Cephiſſus and Liriope the daughter of Oceanus, was a youth of great beauty. Tireſias foretold that he ſhould live till he ſaw himſelf. He deſpiſed all the nymphs of the country; and made ECHO languiſh till ſhe became a mere ſound, by refuſing to return her paſſion; but one day coming weary and fatigued from the chace, he ſtopped on the bank of a fountain to quench his thirſt; when, ſeeing his own form in the water, he became ſo in love with the ſhadowy image, that he languiſhed till he died. A good allegory of the folly of exceſſive ſelf-love. On which the gods changed him into the flower which bears his name.

(II.) * NARCISSUS. *n. ſ.* [Lat. *narciſſe*, Fr.] A daffodil.—

Nor *Narciſſus* fair
As o'er the fabled mountain hanging ſtill.
Thomſon.

(III.) NARCISSUS, in botany, a genus of the monogynia order, belonging to the hexandria claſs of plants; and in the natural method ranking under the 9th order, *Spathaceæ.* There are ſix petals; the nectarium is funnel-ſhapd, and monophyllous; the ſtamina are within the nectarium. The moſt remarkable ſpecies are theſe:

1. NARCISSUS BICOLOR, the two-coloured incomparable narciſſus, hath a large, oblong, bulbous root; crowned with long, narrow, dark-green leaves, 12 or 14 inches long; an upright flower-ſtalk, about 15 inches high, terminated by an uniflorous ſpatha, protruding one large flower with white petals, and a bell-ſhaped, ſpreading, golden nectarium, waved on the margin, and equal in length with the corolla; flowering in April. The varieties are, common ſingle-flowered; ſemi-double-flowered, with the interior petals ſome white and ſome yellow; with ſulphur-coloured flowers.

2. NARCISSUS BULBOCODIUM hath a ſmall bulbous root, crowned with ſeveral narrow, ſubulate, ruſh-like leaves, ſix or eight inches long: amidſt them a ſlender, taper flower-ſtalk, ſix inches high, terminated by an uniflorous ſpatha, protruding one yellow flower, having the nectarium much larger than the petals, and very broad and ſpreading at the brim; flowering in April. From the large ſpreading nectarium of this ſpecies, which is three or four times longer than the petals, narrow at bottom, and widening gradually to the brim, ſo as to reſemble the ſhape of ſome old-faſhioned hoop-petticoats, it obtained the name of *hoop-petticoat narciſſus.*

3. NARCISSUS CALATHINUS, the multiflorous yellow narciſſus, hath a large bulbous root; crowned with long, narrow, plain leaves; and amidſt them an erect, robuſt flower-ſtalk, terminated by a multiflorous ſpatha, protruding many large, entire, yellow flowers, having a bell-ſhaped, ſlightly crenated nectarium, equal in length with the petals.

4. NARCISSUS JONQUILA, the *jonquil*, ſometimes called *ruſh-leaved daffodil*, hath an oblong, bulbous, brown root; ſending up ſeveral long,

ſemi-taper, ruſh-like, bright green leaves; amidſt them an upright green flower-ſtalk, a foot or 15 nches high; terminated by a multiflorous ſpatha, protruding many yellow flowers, often expanded ike a radius, each having a hemiſpherical, crenated nectarium, ſhorter than the petals; flowering in April, and moſtly of a fine fragrance. The varieties are, jonquil minor with ſingle flowers; onquil major with ſingle flowers; ſtarry flowered; yellow and white flowered; white-flowered; ſemi-double-flowered; double-flowered; and large double inodorous jonquil; all multiflorous, the ingle in particular; but ſometimes the doubles produce only two or three flowers from a ſpatha, and the ſingles commonly ſix or eight. All the ſorts have ſo fine a ſhape, ſo ſoft a colour, and ſo ſweet a ſcent, that they are ſome of the moſt agreeable ſpring flowers.

5. **Narcissus Minor**, the yellow winter daffodil, hath a ſmall bulbous root; plain leaves, eight or ten inches loug, and more than half a one broad; an erect flower-ſtalk, terminated by an uniflorous ſpatha, protruding one nodding yellow flower, with ſpear-ſhaped petals, having an oblong conic, ſix-parted, waved nectarium, equal to the ength of the corolla; flowering in winter, or very early in ſpring.

6. **Narcissus Nothus**, the *baſtard narciſſus*, or common yellow Engliſh daffodil, grows wild n great plenty in woods and coppices, and under hedges in ſeveral parts of England. In the counties round London prodigious quantities are brought in ſpring, when in bloom, root and all, and ſold about the ſtreets. Though common, yet conſidered as an early and elegant flower, of exceeding hardineſs and eaſy culture, it merits a place in every garden.

7. **Narcissus Odorus**, the odoriferous, or ſweet-ſcented ſtarry yellow narciſſus, hath a bulbous root; narrow leaves; erect flower-ſtalk, a foot or more high, terminated by a ſub-multiflorous ſpatha, protruding ſometimes but one, and ometimes ſeveral entirely yellow flowers, having a campanulated, ſix-parted, ſmooth nectarium, half the length of the petals.

8. **Narcissus Poeticus**, the *poetic daffodil*, or common white narciſſus, is well known. Of this here are varieties with purple-cupped flowers; yellow-cupped flowers; double-flowered; all of them with entire white petals. It is the ancient celebrated narciſſus of the Greek and Roman poets, which they ſo greatly extol for its extreme beauty and fragrance.

9. **Narcissus Serotinus**, the late-flowering ſmall autumnal narciſſus, hath a ſmall bulbous oot; crowned with a few narrow leaves; amidſt them a jointed flower-ſtalk, eight or nine inches high, terminated by an uniflorous ſpatha, protruding one white flower, having a ſhort, ſix-parted, yellow nectarium; flowering in autumn.

10. **Narcissus Tazetta**, the multiflorous daffodil, commonly called *polyanthus narciſſus*, hath a very large, roundiſh, bulbous root; long, narrow, plain leaves; an upright flower-ſtalk, riſing from 10 or 12 inches to a foot and a half high; terminated by a multiflorous ſpatha, protruding many large, ſpreading, white and yellow flowers, in a cluſter, having bell-ſhaped nectariums ſhorter than the corolla; flowering in February, March and April; and is very fragrant. The varieties of this are very numerous, conſiſting of about eight or nine principal ſorts, each of which having many intermediate varieties; amounting in the whole greatly above 100 in the Dutch floriſts catalogues, each variety diſtinguiſhed by a name according to the fancy of the firſt raiſer of it. They are all very pretty flowers, and make a charming appearance in the flower-borders, &c. they are alſo finely adapted for blowing in glaſſes of water, or in pots, to ornament rooms in winter.

11. **Narcissus Triandrus**, the triandrous ruſh-leaved white narciſſus, hath a bulbous root; very narrow, ruſh-like leaves; erect flower-ſtalk, terminated by an uniflorous ſpatha, protruding one ſnowy-white flower, having a bell-ſhaped, crenated nectarium, half the length of the petals, and with moſtly triandrous or three ſtamina.

12. **Narcissus Trilobus**, the trilobate yellow narciſſus, hath a bulbous root; narrow ruſh-like leaves; erect flower-ſtalks, terminated by a ſub-multiflorous ſpatha, protruding ſometimes but one or two, and ſometimes ſeveral, yellow flowers, have a bell-ſhaped, three-lobed nectarium, half the length of the petals.—All theſe 12 ſpecies are of the bulbous-rooted tribe, and univerſally perennial in root, but annual in leaf and flower-ſtalk; all riſing annually in ſpring, immediately from the crown of the bulb, firſt the leaves, and in the midſt of them the flower-ſtalk, one only from each root, entirely naked or leafleſs, each terminated by a ſpatha or ſheath, which opens on one ſide to protrude the flowers, and then withers; the flowers, as before obſerved, are all hexapetalous, each furniſhed with a nectarium in the centre, and are univerſally hermaphrodite; they are large and conſpicuous, appearing moſtly in ſpring from March until June, ſucceeded by ripe ſeed in July; then the leaves and flower ſtalks decay, and the roots deſiſt from growing for ſome time; at which period of reſt is the only proper time to take up or tranſplant the roots from one place to another, or to ſeparate the offſets; for they all multiply abundantly by offſet young bulbs from the main root, inſomuch that a ſingle bulb will in one or two years be increaſed into a large cluſter of ſeveral bulbs, cloſely placed together, and which every ſecond or third year ſhould be taken up at the above period, in order to be ſeparated; and each offſet ſo ſeparated commences a diſtinct plant; which being planted again in autumn, produces flowers the following ſummer, alike in every reſpect to thoſe of their reſpective parent bulbs. All the ſpecies are ſo hardy, that they proſper in any common ſoil of a garden; only the finer ſorts of *polyanthus narciſſus* require a warm dry ſituation; all the others may be planted any where in the open dry borders and flower-beds.

NARCONDAM, an iſland in the Eaſt Indian Ocean, 20 miles in circumference, and 75 S. of the Andaman iſles. Lon. 94. 51. E. Lat. 13. 25. N.

(1.) * NARCOTICK. *adj.* [ναρκόω; *narcotique*, French.] Producing torpor or ſtupefaction.—*Narcotic* includes all that part of the materia medica which any way produces ſleep, whether called by this name, or hypnotics, or opiates. *Quincy.*—The ancients eſteemed it *narcotic* or ſtupefactive, and it is to be found in the liſt of poiſons by Dioſcorides. *Brown.*

(2.) Narcotics. *n. ſ.* in medicine, are ſoporiferous drugs. Among theſe the moſt eminent are thoſe uſually prepared for medicinal uſes from the poppy; eſpecially opium; as alſo all thoſe prepared from mandragoras, hyoſcyamus, ſtramonium, and datura.

(1.) * NARD. *n. ſ.* [*nardus*, Lat. νάρδος, Gr.] 1. Spikenard; a kind of ointment.—

He now is come
Into the bliſsful field, through groves of myrrh,
And flowering odours, caſſia, *nard*, and balm.
Milton.

2. An odorous ſhrub.—

Smelt o' the bud o' the briar,
Or the *nard* in the fire. *Ben Jonſon.*

(2.) Nard. See Nardus.

NARDO, a pretty populous town of Naples, in Otranto, with a biſhop's ſee. It has about 8000 inhabitants. The ſteeple of its cathedral is built in a very uncommon but ſhowy ſtyle of Gothic architecture. Giordano and Solimeni have adorned the church with ſome agreeable paintings. This place was part of the Balzo eſtate. The Aquavivas were the next poſſeſſors. Claudius Aquaviva, a famous general of the Jeſuits, who died in 1615, was of this family. Lon. 18. 27. E. Lat. 43. 28. N.

NARDUS, in botany, Spikenard, a genus of the monogynia order, belonging to the triandria claſs of plants; and in the natural method ranking under the 4th order, *Gramina.* There is no calyx; the corolla is bivalved. This plant was highly valued by the ancients, both as an article of luxury and medicine. The *unguentum nardinum* was uſed at baths and feaſts as a favourite perfume. Its value is evident from that paſſage of Scripture, where our Saviour's head was anointed with a box of it, with which Judas found fault. From a paſſage in Horace it appears that this ointment was ſo valuable among the Romans, that as much as could be contained in a ſmall box of precious ſtone was conſidered as a ſort of equivalent for a large veſſel of wine, and a proper quota for a gueſt to contribute at an entertainment, according to an ancient cuſtom. The plant had a great character among the ancients as a medicine, both internally and externally. It has a place in the liſt of all antidotes, from thoſe of Hippocrates to the officinals which have kept their ground till lately, under the names of *Mithridate* and *Venice treacle.* Galen and Alexander Trallian recommend it in the dropſy and gravel; Celſus and Galen in pains of the ſtomach and bowels, both internally and externally. Galen preſcribed the oleum nardinum to the emperor Marcus Aurelius when afflicted with a cholera morbus. It was externally applied to the ſtomach on wool; and the ſucceſs was ſo great, that he ever afterwards enjoyed the confidence of that emperor. In a work attributed to Galen, alſo, it is mentioned that a medicine compoſed of this and ſome other aromatics was found uſeful in long protracted fevers; and the natives of India at preſent conſider it as very efficacious in fevers. It has a pungency of taſte ſuperior to contrayerva, and little inferior to ſerpentaria. But though the name of this plant, as well as its uſes and virtues, have long been familiar in the writings of botaniſts and phyſicians, the genus and ſpecies have only been aſcertained very lately.

Nardus Indica In the *Philoſ. Tranſ.* for 1790, Dr Blane gives an account of it from a letter ſent him by his brother from Lucknow, dated Dec. 1786. This gentleman, being one day on a hunting party with the nabob viſier, after croſſing the river Rapty, about 20 miles from the foot of the northern mountains, he was ſurpriſed to find the air perfumed with an aromatic ſmell, which he was told proceeded from the roots of the graſs that were bruiſed or torn out of the ground by the nabob's elephant's and horſes. The country was wild, uncultivated, and entirely covered with this kind of graſs, which grew in large tufts cloſe to each other, and from 3 to 4 feet long. As none of it was in flower, it being then winter, and the graſs having beſides been burnt down by order of the nabob, our author cauſed ſome of the roots to be dug up, to plant in his garden at Lucknow. —Here it proſpered exceedingly, and ſhot up ſpikes ſix feet high. A ſpecimen was ſent to Sir Joſeph Banks, who found it to belong to the genus of andropogon, different from any ſpecies hitherto deſcribed by botaniſts. "There is great reaſon, however (ſays Dr Blane), to think that it is the true *nardus Indica* of the ancients; for, 1. The circumſtance of its diſcovery correſponds in a ſtriking manner with an occurrence related by Arrian, in his Hiſtory of Alexander's Expedition into India. During the march of that hero through the deſarts of Gedroſia, the air was perfumed by the ſpikenard, which was trampled under foot by the army; and the Phœnicians who accompanied them collected great quantities of it, as well as of myrrh, to carry them into their own country to make merchandiſe of them. This laſt circumſtance ſeems further to aſcertain it to have been the true nardus; for the Phœnicians, who even in war appear to have retained their true genius for commerce, could no doubt diſtinguiſh the proper quality of this commodity. I am informed by Major Rennel, that Gedrosia anſwers to the modern Mackran, or Kedgemackran, a maritime province of Perſia, ſituated between Kerman (the ancient Caramania), and the Indus, being of courſe the frontier province of Perſia towards India; and that it appears from Arrian's account, and from a Turkiſh map of Perſia, that this deſart lies in the middle tract of country between the Indus and the Perſian Gulf, and within a few days march of the Arabian or Erythræan Sea. By this the ancients meant the north part of the Ethiopic ocean, which waſhes the ſouth coaſts of Arabia and Perſia; not what we now call the *Red Sea*, as its name would ſeem to imply, for that by the ancients was called the *Arabian Gulf.* Though the accounts of the ancients concerning this plant are very defective, it is plain that it was of the natural order of gramina; for the term *ariſta*, ſo often applied to it, was appropriated by them to the fructification of grains and graſſes, and ſeems to be a word of Greek original, to denote the moſt excellent portion of thoſe plants which are the moſt uſeful in the vegetable creation for the ſuſtenance of animal life; and [illegible] has alſo kindly made them the moſt abundant in all parts of the habitable earth. Galen ſays, that though there are various ſorts of nardus, the term ναρδος ϛαχυς, or *ſpikenard*, ſhould not be applied to any but the nardus Indica. It would appear that the nardus Celtica was a plant of a quite different habit, and is ſuppoſed to have been a pecies of valeriana. The deſcription of the Nardus Indica by Pliny does not indeed correſpond with the appearance of our ſpecimen; for he ſays it is *frutex radice pingui et craſſa*, whereas ours has ſmall fibrous roots. But as Italy is very remote from the native country of this plant, it is reaſonable to ſuppoſe that others more eaſily procurable uſed to be ſubſtituted for it; and he ſame author ſays, that there were nine different plants by which it could be imitated and adulterated. There is a *Nardus Aſſyrica* mentioned by Horace; and Dioſcorides mentions the *Nardus Syriaca*, as a ſpecies different from the *Indica*, which certainly was brought from ſome of the remote parts of ndia; for both Dioſcorides and Galen, by way of fixing more particularly the country from whence it came, call it the *Nardus Gangites*. 3. *arcias ab Horto*, a Portugueſe who reſided many years at Goa in the 16th century, has iven a figure of the roots, or rather of the lower arts of the ſtalks, which correſponds with our pecimen; and he ſays that there is but this one pecies of nardus known in India, either for the onſumption of the natives, or for exportation to erſia and Arabia. 4. The ſenſible qualities of his are ſuperior to what commonly paſſes for it n the ſhops, being poſſeſſed both of more fra-ancy and pungency, which ſeems to account for he preference given to it by the ancients. There a queſtion, concerning which Matthiolus, the mmentator of Dioſcorides, beſtows a good deal f argument, viz. whether the roots or ſtalks were e parts eſteemed for uſe, the teſtimony of the cients themſelves on this head being ambiguous. he roots of this ſpecimen are very ſmall, and oſſeſs ſenſible qualities inferior to the reſt of the ant; yet it is mentioned in the account above cited, that the virtues reſide principally in the uſky roots. It is evident, that by the huſky roots uſt here be meant the lower parts of the ſtalks d leaves, where they unite to the roots; and it probably a ſlight ambiguity of this kind that has ven occaſion to the ambiguity that occurs in the cient accounts." The ſenſible qualities of this ant do not depend upon an eſſential oil, but on me fixed principle like thoſe of cardamoms or ger. Dr Blane tried to extract its virtues with iling water, maceration in wine and proof ſpirits; t it yielded them ſparingly and with difficulty any of theſe menſtrua. The Indians give an uſion of it in hot water, with a ſmall quantity black pepper, as a febrifuge.

* NARE. *n. ſ.* [*naris*, Lat.] A noſtril; not uſed, cept, as in the following paſſage, in affectation.

> There is a Machiavelian plot,
> Though every *nare* olfact it not. *Hudibras.*

(1.) NAREA, the moſt ſoutherly province of e empire of Abyſſinia; a kingdom ſtill governed its own princes, who have the title of *Beneros.* territory was formerly more extenſive than at ſent, the Galla having almoſt quite ſurrounded it, eſpecially on the SE. and N. The country on the W. is the moſt unknown part of Africa; the kingdom itſelf ſtands like a fortified place in the middle of a plain, being an high and mountainous country. Many rivers, riſing in Lat. 4° and 5° N. ſpread over the level part of the country, and fill it with marſhes all the way from S. by E. to N. or NW. Theſe marſhes are bounded by mountains, of which thoſe neareſt the marſhes are overgrown with coffee trees, the largeſt, if not the only ones, which grow in this country. The mountainous country of *Caffa* adjoins immediately to Narea, and is ſaid to be governed by a ſeparate prince; but the Galla having ſettled in all the flat ground to the very edge of the marſhes, have almoſt cut off the communication with Abyſſinia. It is ſaid that ſnow has been ſeen to lie on ſome of the mountains of Caffa; but Mr Bruce imagines this to be a miſtake, and thinks that it muſt have been hail. Narea abounds with cattle, grain, and all kinds of proviſions, both in the high and low country. The medium of commerce is gold, paid by weight; but the principle articles of trade are coarſe cotton cloths, antimony, beads, and incenſe, which are carried from this country to Angola, and the parts of the African continent towards the Atlantic.

(2.) NAREA PROPER, a diſtrict or kingdom, in the above country, interſperſed with ſmall, unwholeſome, but very fertile valleys.

NAREANS, the natives of NAREA. The Nareans who inhabit the mountainous country have the lighteſt complexion of any people in Abyſſinia; but thoſe who inhabit the borders of the marſhes are perfectly black, and have the features and woolly heads of negroes; but the mountaineers of Narea, and much more thoſe of Caffa, are fair complexioned, more ſo than even the Neapolitans or Sicilians. Theſe people are exceedingly brave; and though they have been driven out of the low country by multitudes of Galla, they now bid them defiance, and drive them from their frontiers whenever they come too near. The Narean priſoners taken in theſe ſkirmiſhes are ſold to the Mahometan merchants at Gondar; and at Conſtantinople, Cairo, or in India, the women are more eſteemed than thoſe of any other part of the world. Both ſexes have a cheerful, kind, diſpoſition, and attach themſelves inviolably to their maſters, if properly treated. The people of Narea and Caffa ſpeak a language peculiar to themſelves.

(1.) NARENTA, a river in Dalmatia.

(2.) NARENTA. See VERGORAZ, N° 2.

(3.) NARENTA, or NARONA, a ruinous town in Dalmatia, on the Narenta, near Vido. Geographers differ much in their accounts of this place. Dr Brookes and J. Walker make it "a town of *Turkey* in Dalmatia." Dr Brookes adds, "with a biſhop's ſee." But the Rev. C. Cruttwell ſtyles it "a town of *Venetian* Dalmatia;" and Dr Oppenheim confirms this account by placing it in the ſhort-lived diſtrict denominated Maritime Auſtria. Theſe two authors, however, diſagree in their deſcriptions of it. The Doctor ſays, it "conſiſts of the remains of the former celebrated town NARONA, eight miles from Citclut." But Mr Cruttwell ſays expreſsly, "Of the *ancient* town *not the leaſt trace* is ſaid to remain; but in this neighbourhood is another, called

" NARENZA, from the river of the ſame name, which the Venetians fortified, but diſmantled again in 1716; 68 miles SE. Spalatro, and 36 N. W. Raguſa. Lon. 35. 50. E. Ferro. Lat. 43. 34. N."

NARES, James, Muſ. D. an ancient compoſor of muſic, born at Stanwell, in Middleſex, in 1715. In 1734, he was made organiſt of York cathedral; in 1755, organiſt to the king, and was created Doctor of Muſic at Cambridge. In 1757, he was made Maſter of the choriſters. He died in 1783. His works are eſteemed.

(1.) NAREW, a town of Poland, in Bielſk.

(2.) Narew, a river of Poland in Lithuania.

NARGARA, a town of Africa, where Hannibal and Scipio had a conference. *Liv.* xxx. c. 29.

NARNALLA, a town of Indoſtan, in Berar; 33 miles WNW. of Ellichpour, and 72 E. of Burhanpour. Lon. 77. 34. E. Lat. 21. 25. N.

NARNI, a very ancient, rich, and handſome town of Italy in Sabina, according to Brookes and Walker, or in Spoletto, according to Mr Cruttwell, ſeated on the Nera, 20 miles SW. of Spoletto, and 40 NE. of Rome. It has the ruins of a marble bridge, built by Auguſtus, one arch whereof was 150 feet high and 200 broad; alſo of an aqueduct that brings water from a ſpring 15 m. diſtant.

NARO, a river of Dalmatia, which runs into the Adriatic, now called Narenta.

NARONA, in ancient geography, a town of Dalmatia, ſeated on the Naro, of which not a veſtige now remains. See Narenta, N° 3.

NAROVA, a river of Ruſſia, in Ingria, famous for a romantic cataracts. It riſes from lake Peipus, 24 miles above Narva, waters that town, and falls into the Gulf of Finland 8 miles below it.

* NARRABLE. *adj.* [from *narro*, Lat.] Capable of being told or related.

(2.) Narragansett Bay, a large bay of Rhode Iſland, 18 miles long from S. to N. and from 8 to 11 broad. It has ſeveral rich iſlands, particularly Rhode Iſland, Connecticut, Prudence, Patienee, Hope, Hog Iſland, &c. Its chief harbours are Newport, Wichfield, Warren, Briſtol, Providence, and Patuxet. It affords plenty of oyſters, lobſters, and other fiſh.

Narragansetts, a tribe of N. American Indians, in Connecticut, who were conquered by the Mohegans, and their Sachem *Myantonomo* ſavagely butchered by *Uncas*, the Mohegan chief, who broiled and eat a piece of his ſhoulder, like a horrible cannibal. See Connecticut, N° III, § 8.

NARRAGHMORE, a town of Ireland, in Kildare county, Leinſter.

(1.) NARRAGUAGUS, a poſt town of the United States, in Main, Waſhington county, on the bay (N° 3.) 16 miles NE. of Goldſborough, 63 E. of Penobſcot, 673 from Philadelphia.

(2.) Narraguagus, a river of Maine in Waſhington county, falling into

(3.) Narraguagus Bby, a bay of Maine, between Goldſborough and Machias, 65 miles long, containing many inhabited iſles, and ſafe harbours.

* *To* NARRATE. *v. a.* [*narro*, Lat.] To relate; to tell: a word uſed in Scotland.

(1.) * NARRATION. *n. ſ.* [*narratio*, Latin; *narration*, French.] Account; relation; hiſtory. —He did doubt of the truth of that *narration*. *Abbot.*—They that deſire to look into the *narrations* of the ſtory, or the variety of the matter, we have been careful might have profit. 2. *Mac.* ii. 25. —This commandment, containing, among other things, *narration* of the creation of the world, is commonly read. *White.*—*Homer* introduces the beſt inſtructions, in the midſt of the plaineſt *narrations*. *Broome.*

(2.) Narration, in oratory, poetry, and hiſtory, is a recital or rehearſal of a fact as it happened, or as it is ſuppoſed to have happened. See Oratory.

(3.) Narration and description, rules and examples respecting. On this ſubject the following rules are laid down in the *Elements of Criticiſm*: 1. In hiſtory the reflections ought to be chaſte and ſolid: for while the mind is intent upon truth, it is little diſpoſed to the operation of the imagination. Strada's Belgic hiſtory is full of poetical images, which, being diſcordant with the ſubject, are unpleaſant; and give an air of fiction to a genuine hiſtory. Such flowers ought to be ſcattered with a ſparing hand, even in epic poetry; and at no rate are they proper till the reader be warmed, and by an enlivened imagination be prepared to reliſh them: in that ſtate of mine they are agreeable; but while we are ſedate and attentive to an hiſtorical chain of facts, we reject with diſdain every fiction. 2. Vida, following Horace, recommends a modeſt commencement of an epic poem; giving for a reaſon, that the writer ought to huſband his fire. Beſides, bold thoughts and figures are never reliſhed till the mind be heated and thoroughly engaged, which is not the reader's caſe at the commencement. Homer introduces not a ſingle ſimile in the firſt book of the Iliad, nor in the firſt book of the Odyſſey. On the other hand, Shakeſpeare begins one of his plays with a ſentiment too bold for the moſt heated imagination: " Hung be the heav'ns with black, yield day to night," &c. (See *Firſt part Henry VI.*) The paſſage with which Strada begins his hiſtory is too poetical for a ſubject of that kind; and at any rate too high for beginning a grave performance. 3. Where the ſubject is intended for entertainment ſolely, not for inſtruction, a thing ought to be deſcribed as it appears, not as it is in reality. In running, for example, the impulſe upon the ground is proportioned in ſome degree to the celerity of motion; though in appearanee it is otherwiſe, for a perſon in ſwift motion ſeems to ſkim the ground, and ſcarcely to touch it. Virgil, with great taſte, deſcribes quick running according to appearance; and raiſes an image far more lively than by adhering cloſely to truth. (See *Æneid*, vii. 803.) 4. In narration as well as in deſcription, objects ought to be painted ſo accurately as to form in the mind of the reader diſtinct and lively images. Every uſeleſs circumſtance ought indeed to be ſuppreſſed; but if a circumſtance be neceſſary, however ſlight, it cannot be deſcribed too minutely. The force of language conſiſts in raiſing complete images, which have the effect to tranſport the reader by magic into the very place of the important tion, and to convert him as it were into a ſpectator, beholding every thing that paſſes. The narrative in an epic poem ought to rival a picture in the livelineſs and accuracy of its repreſentations: no circumſtance muſt be omitted that tends to make a complete image; becauſe an imperfect image, as well as any other imperfect conception, is cold and unintereſting. We ſhall illuſtrate this by one example, out of many that might be given from Virgil:

> Hic viridem Æneas *frondenti ex ilice* metam
> Conſtituit, ſignum nautis. *Æneid.* v. 129.

—See alſo Horace; *Carm. lib.* i. *ode.* 35; and *lib.* iii. *ode* 2. Shakeſpeare abounds with beauties of this kind: "You may as well go about to turn the ſun to ice by fanning in his face with a *peacock's* feather." Again, "the rogues ſlighted me into the river with as little remorſe as they would have drown'd a bitch's blind puppies, fifteen i' th' litter. See alſo *Hen.* VIII. *Act* 2. *Sc.* 5. *Julius Cæſar, Act* 1. *Sc.* 1. Milton and Oſſian too abound with inſtances. Lord Kames reckons the following from the latter ſcarce inferior to Shakeſpeare: "Far before the reſt, the ſon of Oſſian comes: bright in the ſmiles of youth, fair as the firſt beams of the ſun. His long hair waves on his back: his dark brow is half beneath his helmet. The ſword hangs looſe on the hero's ſide; and his ſpear glitters as he moves. I fled from his terrible eye, King of high Temora." (*Fingal.*) The *Henriade* of *Voltaire* errs greatly againſt the foregoing rule: every incident is touched in a ſummary way, without ever deſcending to circumſtances. This manner is good in a general hiſtory, the purpoſe of which is to record important tranſactions; but in a fable it is cold and unintereſting; becauſe it is impracticable to form diſtinct images of perſons or things repreſented in a manner ſo ſuperficial. 5. The crowding uſeleſs circumſtances is, on the one hand, not leſs to be avoided, than the conciſeneſs for which Voltaire is blamed on the other. In the Æneid, Barce, the nurſe of Sichæus, whom we never hear of before nor after, is introduced for a purpoſe not more important than to call Anna to her ſiſter Dido: and that it might not be thought unjuſt in Dido, even in this trivial circumſtance, to prefer her huſband's nurſe before her own, the poet informs his reader, that Dido's nurſe was dead. To this may be oppoſed a beautiful paſſage in the ſame book, where, after Dido's laſt ſpeech, the poet, without detaining his readers by deſcribing the manner of her death, haſtens to the lamentation of her attendants. (See *Æneid, lib.* iv. l. 663.) As an appendix to the foregoing rule, it may be added, that to make a ſudden and ſtrong impreſſion, ſome ſingle circumſtance, happily ſelected, has more power than the moſt laboured deſcription. Macbeth, mentioning to his lady ſome voices he heard while he was murdering the King, ſays,

> There's one did laugh in's ſleep, and one cry'd murder!
> They wak'd each other; and I ſtood and heard them;
> But they did ſay their prayers, and addreſs them
> Again to ſleep.
> *Lady.* There are two lodg'd together?
> *Macbeth.* One cry'd, God bleſs us! and, Amen! the other;
> As they had ſeen me with theſe hangman's hand's.
> Liſtening their fear, I could not ſay, Amen,
> When they did ſay, God bleſs us.
> *Lady.* Conſider it not ſo deeply.
> *Macbeth.* But wherefore could not I pronounce Amen?
> I had moſt need of bleſſing, and Amen
> Stuck in my throat. *Act* 2. *ſc.* 3.

—The ſame author, ſpeaking ludicrouſly of an army debilitated with diſeaſes, ſays, "Half of them dare not ſhake the ſnow from off their caſſocks, leſt they ſhake themſelves to pieces." 6. To draw a character is the maſter ſtroke of deſcription. In this Tacitus excels: his portraits are natural and lively, not a feature wanting or miſplaced. Shakeſpeare, however, exceeds Tacitus in livelineſs; ſome characteriſtical circumſtance being invented or laid hold of, which paints more to the life than many words: the following inſtances will explain our meaning, and at the ſame time prove our obſervation to be juſt:—"Gratiano ſpeaks an infinite deal of nothing, more than any man in all Venice: his reaſons are two grains of wheat hid in two buſhels of chaff; you ſhall ſeek all day ere you find them; and when you have them, they are not worth the ſearch." (*Merch. of Ven. Act* 1. *ſc.* 2.) Deſcribing a jealous huſband: "Neither preſs, coffer, cheſt, trunk, well, vault, but he hath an abſtract for the remembrance of ſuch places, and goes to them by his note. There is no hiding you in the houſe." (*Merry Wives. Act* 4. *ſc.* 3.) Falſtaff ſpeaking of Ancient Piſtol: "He's no ſwaggerer, hoſteſs; a tame cheater i'faith; you may ſtroak him as gently as a puppy greyhound; he will not ſwagger with a Barbary hen, if her feathers turn back in any ſhow of reſiſtance," (2d *part Henry IV. Act.* 2. *ſc.* 9.) Oſſian among his other excellencies is eminently ſucceſsful in drawing characters; and he never fails to delight his reader with the beautiful attidudes of his heroes: "O Oſcar! bend the ſtrong in arm, but ſpare the feeble hand. Be thou a ſtream of many tides againſt the foes of thy people; but like the gale that moves the graſs to thoſe who aſk thine aid.—So Trenmor lived; ſuch Trathal was; and ſuch has Fingal been. My arm was the ſupport of the injured; and the weak reſted behind the lightening of my ſteel."—"We heard the voice of joy on the coaſt, and we thought that the mighty Cathmor came. Cathmor the friend of ſtrangers! the brother of red-haired Cairbar! But their ſouls were not the ſame; for the light of heaven was in the boſom of Cathmor. His towers roſe on the banks of Atha: ſeven paths led to his halls: ſeven chiefs ſtood on theſe paths, and called the ſtranger to the feaſt. Cathmor dwelt in the wood to avoid the voice of praiſe." 7. Some writers, through heat of imagination, fall into contradiction; ſome are guilty of downright abſurdities; and ſome even rave like madmen. Againſt ſuch capital errors one cannot be more effectually warned than by collecting inſtances; and the firſt ſhall be of a contradiction, the moſt venial of all. Virgil ſpeaking of Neptune. (*Æneid*, i. 28.) ſays,

> *Graviter commotus*, et alto

Proſpiciens, ſummâ *placidum* caput extulit undâ.

When firſt young Maro, in his boundleſs mind,
A work *t'outlaſt immortal* Rome deſign'd.

Pope's Eſſay on Criticiſm, l. 30.

The following are examples of abſurdities:—

He fled, but flying, *left his life* behind.

Iliad, xi. 443.

Full thro' his neck the weighty falchion ſped:
Along the pavement roll'd the *mutt'ring head.*

Odyſſey, xxii. 365.

Having diſcuſſed what obſervations occurred upon the thoughts expreſſed, we proceed to what more peculiarly concerns the language or verbal dreſs. As words are intimately connected with the ideas they repreſent, the emotions raiſed by the ſound and by the ſenſe ought to be concordant. An elevated ſubject requires an elevated ſtyle; what is familiar, ought to be familiarly expreſſed: a ſubject that is ſerious and important, ought to be clothed in plain nervous language: a deſcription, on the other hand, addreſſed to the imagination, is ſuſceptible of the higheſt ornaments that ſounding words and figurative expreſſion can beſtow upon it. A poet of any genius is not apt to dreſs a high ſubject in low words; and yet blemiſhes of that kind are found even in claſſical works. Horace, obſerving that men are ſatisfied with themſelves, but ſeldom with their condition, introduces Jupiter indulging to each his own choice; and then ſaying,

Quid ſtatis? nolint: atqui licet eſſe beatis.
Quid cauſæ eſt? *merito quin illis Jupiter ambas*
Iratus buccas inflet, neque ſe fore poſthac
Tam facilem, dicat, votis præbeat aurem?

Sat. lib. 1. *ſat.* 1. l. 16.

—Jupiter in wrath *puffing up both cheeks*, is a low and even ludicrous expreſſion, far from ſuitable to the gravity of the deity, and importance of the ſubject: every one muſt feel the diſcordance. The following couplet, ſinking far below the ſubject, is no leſs ludicrous:

Not one looks backward, onward ſtill he goes,
Yet ne'er looks forward *farther than his noſe.*

Eſſay on Man, ep. iv. 223.

—On the other hand, to raiſe the expreſſion above the tone of the ſubject, is a fault than which none is more important. Take the following inſtances:

No jocund health that Denmark drinks to-day,
But the great cannon to the clouds ſhall tell;
And the king's rouſe the heav'n ſhall bruit again,
Reſpeaking earthly thunder. *Ham. Act* 1 *ſc.* 2.

—The language of Homer is ſuited to his ſubject, not leſs accurately than the actions and ſentiments of his heroes are to their characters. Virgil, in that particular, falls ſhort of perfection: his language is ſtately throughout: and though he deſcends at times to the ſimpleſt branches of cookery, roaſting and boiling for example, yet he never relaxes a moment from the high tone. In adjuſting his language to his ſubject, no writer equals Swift. We recollect but one exception, which at the ſame time is far from being groſs; The Journal of a modern Lady is compoſed in a ſtyle blending ſprightlineſs with familiarity, perfectly ſuited to the ſubject: in one paſſage, however, the poet, deviating from that ſtyle, takes a tone above his ſubject: The paſſage we mean begins l. 116. But *let me now a while ſurvey*, &c. and ends l. 135. Writers of inferior rank are continually upon the ſtretch to enliven and enforce their ſubject by exaggeration and ſuperlatives. This unluckily has an effect contrary to what is intended: the reader, diſguſted with language that ſwells above the ſubject, is led by contraſt to think more meanly of the ſubject than it may deſerve. A man of prudence will be no leſs careful to huſband his ſtrength in writing than in walking: a writer, too liberal of ſuperlatives, exhauſts his whole ſtock upon ordinary incidents, and reſerves no ſhare to expreſs, with greater energy, matters of importance. Many writers of that kind abound ſo in epithets, as if poetry conſiſted entirely in high ſounding words:

When *black-brow'd* night her *duſky* mantle ſpread,
And wrapt in *ſolemn* gloom the *ſable* ſky;
When *ſoothing* ſleep her *opiate* dews had ſhed,
And ſeal'd in *ſilken* ſlumbers every eye:
My *waking* thoughts admit no *balmy* reſt,
Nor the *ſweet* bliſs of *ſoft* oblivion ſhare;
But *watchful* wo diſtracts my *aching* breaſt,
My heart the ſubject of *corroding* care:
From haunts of men with *wand'ring* ſteps and *ſlow*
I *ſolitary* ſteal, and ſoothe my *penſive* woe.

Here every ſubſtantive is faithfully attended by ſome tumid epithet. We proceed to a 2d remark, not leſs important: An incident makes a ſtronger impreſſion on an eye-witneſs, than when heard at ſecond hand. Writers of genius, ſenſible that the eye is the beſt avenue to the heart, repreſent every thing as paſſing in our ſight; and, from readers or hearers, transform us as it were into ſpectators: a ſkilful writer conceals himſelf, and preſents to his perſonages: in a word, every thing becomes dramatic as much as poſſible. Plutarch, *de gloria Athenienſium*, obſerves, that Thucydides makes his reader a ſpectator, and inſpires him with the ſame paſſions as if he were an eye-witneſs. In the fine arts, it is a rule to put the capital objects in the ſtrongeſt point of view; and even to preſent them oftener than once, where it can be done. In hiſtory-painting, the principal figure is placed in the front, and in the beſt light; an equeſtrian ſtatue is placed in a centre of ſtreets, that it may be ſeen from many places at once. In no compoſition is there greater opportunity for this rule than in writing:

———Sequitur pulcherrimus Aſtur,
Aſtur equo fidens et verſicoloribus armis.

Æneid x. 180.

—See examples in *Milton's Paradiſe Loſt*, b. iv. 634; and *Ezekiel* xviii. from v. 2. to 23, incluſive. A conciſe comprehenſive ſtyle is a great ornament in narration; and a ſuperfluity of unneceſſary words, not leſs than of circumſtances, a great nuiſance. A judicious ſelection of the ſtriking circumſtances, clothed in a nervous ſtyle, is delightful. In this ſtyle, Tacitus excels all writers ancient and modern. Inſtances are numberleſs: take the following ſpecimen:—"Crebra hinc prælia, et ſæpius in modum latrocinii: per ſaltus, per paludes: ut cuique fors aut virtus: temere, proviſo, ob iram, ob prædam, juſſu, et aliquando ignaris ducibus." *Annal. lib.* 12. § 39. After Tacitus, Oſſian juſtly merits the place of diſtinction. One cannot go wrong for examples in any part of the book. If a conciſe and nervous ſtyle be a beauty, tautology muſt be a blemiſh: and yet writers fettered by verſe, are not ſufficiently careful to avoid this ſlovenly practice they may be pitied, but they cannot be juſtified. Take for a ſpecimen the following inſtances, from the beſt poet, for verſification at leaſt, that England has to boaſt of:

High on his helm celeſtial lightnings play,
His beamy ſhield emits a living ray;
Th' unweary'd blaze inceſſant ſtreams ſupplies,
Like the red ſtar that fires th' autumnal ſkies.
Pope's Iliad v. 5.

Strength and omnipotence inveſt thy throne.
Ibid. viii. 576.

No—could our ſwiftneſs o'er the winds prevail,
Or beat the pinions of the weſtern gale,
All were in vain.—— *Ibid.* xix. 604.

We cloſe this article with a curious inquiry. An object, however ugly to the ſight, is far from being ſo when repreſented by colours or by words. What is the cauſe of this difference? With reſpect to painting, the cauſe is obvious: a good picture, whatever the ſubject be, is agreeable by the pleaſure we take in imitation; and this pleaſure overbalancing the diſagreeableneſs of the ſubject, makes the picture upon the whole agreeable. With reſpect to the deſcription of an ugly object, the cauſe follows. To connect individuals in the ſocial ſtate, no particular contributes more than language, by the power it poſſeſſes of an expeditious communication of thought, and a lively repreſentation of tranſactions. But language, independent of utility, is ſuſceptible of many beauties, which are directly felt, without any intervening reflection. (See LANGUAGE, *Sect.* VI.) And this unfolds the myſtery; for the pleaſure of language is ſo great, as in a lively deſcription to overbalance the diſagreeableneſs of the image raiſed by it. This, however, is no encouragement to chooſe a diſagreeable ſubject; for the pleaſure is incomparably greater where the ſubject and the deſcription are both agreeable. The deſcription is often upon the whole agreeable, though the ſubject deſcribed is in itſelf diſmal. See examples in *Milt. Par. Loſt. b.* 1. *l.* 50. and *Richard II. Act* 3. *ſc.* 6. Objects that ſtrike terror in a ſpectator, have in poetry and painting a fine effect. The picture, by raiſing a ſlight emotion of terror, agitates the mind; and in that condition every beauty makes a deep impreſſion. See examples in *Milt. Par. Loſt. b.* 2. *l.* 666: *b.* 6. 207: *Hamlet, Act* 1. *ſc.* 8: *Othello, Act* 5. *ſc.* 8; &c. Objects of horror muſt be excepted from this theory; for no deſcription, however lively, is ſufficient to overbalance the diſguſt raiſed even by the idea of ſuch objects. Every thing horrible ought therefore to be avoided in a deſcription.

(1.) * **NARRATIVE.** *adj.* [*narratif-ve*, French; from *narro*, Latin.] 1. Relating; giving an account.—To judicial acts credit ought to be given, though the words be *narrative. Ayliffe's Parergon.* 2. Storytelling; apt to relate things paſt.—Age, as *Davenant* ſays, is always *narrative. Dryden.*—

The poor, the rich, the valiant, and the ſage,
And boaſting youth, and *narrative* old age.
Pope.

(2.) * **NARRATIVE.** *n. ſ.* A relation; an account; a ſtory.—In the inſtructions I give to others, concerning what they ſhould do, take a *narrative* of what you have done. *South.*—*Cynthio* was much taken with my *narrative. Tatler.*

* **NARRATIVELY.** *adv.* [from *narrative.*] By way of relation.—The words of all judicial acts are written *naratively*, unleſs it be in ſentences wherein diſpoſitive and enacting terms are made uſe of. *Ayliffe's Parergon.*

* **NARRATOR.** *n. ſ.* [*narrateur*, French; from *narro*, Lat.] A teller; a relater.—Conſider whether the *narrator* be honeſt and faithful, as well as ſkilful. *Watts' Logic.*

(1.) * **NARROW.** *adj.* [*nearu*, Saxon; from *nyr.*] 1. Not broad or wide; having but a ſmall diſtance from ſide to ſide.—

Edward from Belgia,
Hath paſs'd in ſafety thro' the *narrow* ſeas. *Shak.*

—The angel ſtood in a *narrow* place, where was no way to turn either to the right hand or to the left. *Num.* ii. 26.—In a *narrow* bottom'd ditch cattle cannot turn. *Mortimer.*—By being too few, or of an improper figure and dimenſion to do their duty in perfection, they become *narrow* and incapable of performing their native function. *Blackmore.* 2. Small; of no great extent: uſed of time as well as place.—From this *narrow* time of geſtation may enſue a ſmallneſs in the excluſion. *Brown.*—Though the Jews were but a ſmall nation, and confined to a *narrow* compaſs in the world, yet the firſt riſe of letters and languages is truly to be aſcribed to them. *Wilkins.* 3. Covetous; avaricious.—

To *narrow* breaſts he comes all wrapt in gain.
Sidney.

4. Contracted; of confined ſentiments; ungenerous.—Nothing more ſhakes any ſociety than mean diviſions between the ſeveral orders of its members, and their *narrow*-hearted repining at each other's gain. *Sprat.*—The greateſt underſtanding is *narrow*. How much of God and nature is there, whereof we never had any idea? *Grew's Coſmologia ſacra.*—The hopes of good from thoſe whom we gratify, would produce a very *narrow* and ſtinted charity. *Smallridge.*—A ſalamander grows familiar with a ſtranger at firſt ſight, and is not ſo *narrow*-ſpirited as to obſerve, whether the perſon ſhe talks to be in breaches or in petticoats. *Addiſon.*—It is with *narrow*-ſouled people as with *narrow*-neck'd bottles; the leſs they have in them the more noiſe they make in pouring it out. *Swift's Miſc.* 5. Near; within a ſmall diſtance.—

Then Mneſtheus to the head his arrow drove,
But made a glancing ſhot, and miſs'd the dove;
Yet miſs'd ſo *narrow*, that he cut the cord
Which faſten'd by the foot the flitting bird.
Dryden.

6. Cloſe; vigilant; attentive.—

The orb he roam'd
With *narrow* ſearch. *Milton.*

—Many malicious ſpies are ſearching into the actions of a great man, who is not always the beſt prepared for ſo *narrow* an inſpection. *Spectator.*

(2.) NARROW. See DICTIONARY, § 4.

* *To* NARROW. *v. a.* [from the adjective.] 1. To diminiſh with reſpect to breadth or wideneſs. -In the wall he made *narrowed* reſts, that the beams ſhould not be faſtened in the walls of the houſe. 1 *Kings*, vi. 6.—By reaſon of the great continent of Braſilia, the needle deflecteth toward the land 12 degrees; but at the Straits of Magellan, where the land is *narrowed*, and the ſea on the other ſide, it varieth about 5 or 6. *Brown.*—A government, which by alienating the affections, loſing the opinions, and croſſing the intereſts of the people, leaves out of its compaſs the greateſt part of their conſent, may juſtly be ſaid, in the ſame degrees it loſes ground, to *narrow* its bottom. *Temple.* 2. To contract; to impair in dignity of extent or influence.—One ſcience is incomparably above all the reſt, where it is not by corruption *narrowed* into a trade, for ſecular intereſts; I mean, theology. *Locke.* 3. To contract in ſentiment or capacity of knowledge.—Deſuetude does contract and *narrow* our faculties, ſo that we can apprehend only thoſe things in which we are converſant. *Gov. of the Tongue.*—How hard it is to get the mind, *narrowed* by a ſcanty collection of common ideas, to enlarge itſelf to a more copious ſtock. *Locke.*—

Bounded by nature, *narrow'd* ſtill by art,
A trifling head, and a contracted heart. *Pope.*

4. To confine; to limit.—I muſt find fault with his *narrowing* too much his own bottom, and his unwary ſapping the foundation on which he ſtands. *Waterland.*—By admitting too many things at once into one queſtion, the mind is dazzled and bewildered; whereas, by limiting and *narrowing* the queſtion, you take a fuller ſurvey of the whole. *Watts.*—Our knowledge is much more *narrow'd*, if we confine ourſelves to our own ſolitary reaſonings, without much reading. *Watts.* 5. [In farriery.] A horſe is ſaid to *narrow*, when he does not take ground enough, and does not bear far enough out to the one hand or to the other. *Farrier.*

* NARROWLY. *adv.* [from *narrow.*] 1. With little breadth or wideneſs; with ſmall diſtance between the ſides. 2. Contractedly; without extent. —The church of England is not ſo *narrowly* calculated, that it cannot fall in with any regular ſpecies of government. *Swift.* 3. Cloſely; vigilantly; attentively.—

My fellow ſchoolmaſter
Doth watch Bianca's ſteps ſo *narrowly*. *Shak.*

—If it be *narrowly* conſidered, this colour will be reprehended or encountered, by imputing to all excellencies in compoſitions a kind of poverty. *Bacon.*—For a conſiderable treaſure hid in my vineyard, ſearch *narrowly* when I am gone. *L'Eſtr.* —A man's reputation draws eyes upon him that will *narrowly* inſpect every part of him. *Addiſon.* 4. Nearly; within a little.—Some private veſſels took one of the Aquapulca ſhips, and very *narrowly* miſſed the other. *Swift.* 5. Avariciouſly; ſparingly.

* NARROWNESS. *n. ſ.* [from *narrow.*] 1. Want of breadth or wideneſs.—In our Gothic cathedrals, the *narrowneſs* of the arch makes it riſe in height, or run out in length. *Addiſon.* 2. Want of extent; want of comprehenſion.—That prince, who ſhould be ſo wiſe and godlike, as by eſtabliſhed laws of liberty to ſecure protection and encouragement to the honeſt induſtry of mankind, againſt the oppreſſion of power, and *narrowneſs* of party, will quickly be too hard for his neighbours. *Locke's Works.* 3. Confined ſtate; contractedneſs..—The moſt learned and ingenious ſociety in Europe confeſs the *narrowneſs* of human attainments. *Glanville.*—

Cheap vulgar arts, whoſe *narrowneſs* affords
No flight for thoughts, but poorly ſticks at
words. *Denham.*

—The Latin, a ſevere and compendious language, often expreſſes that in one word, which either the barbarity or the *narrowneſs* of modern tongues cannot ſupply in more. *Dryden.* 4. Meanneſs; poverty.—If God will fit thee for this paſſage, by taking off thy load, and emptying thy bags, and to ſuit the *narrowneſs* of thy fortune to the narrowneſs of the way thou art to paſs, is there any thing but mercy in all this? *South.* 5. Want of capacity. —Another diſpoſition in men, which makes them improper for philoſophical contemplations, is not ſo much from the *narrowneſs* of their ſpirit and underſtanding, as becauſe they will not take time to extend them. *Burnet's Theory.*

(1.) NARROWS, a ſtrait of New York, between Long Iſland and Staten Iſland, leading into the bay before New York, nine miles ſouth of that city.

(2.) NARROWS, a ſtrait of St Chriſtopher's, between that iſland and Nevis, three miles broad.

NARSAPOUR, the name of four towns of Indoſtan: viz. 1. In the circar of Ellore, 40 miles ESE. of Ellore: 2. In ditto, 25 miles NW. of Ellore: 3. In Golconda, 10 miles SSE. of Damapetta: 4. In Myſore, 22 miles N. of Bangalore.

(1.) NARSES, a king of Perſia, who was defeated by the emperor Maximianus Galerius, in the 7th year of his reign. A. D. 294. See ROME.

(2.) NARSES, a eunuch who rivalled Beliſarius in heroiſm under Juſtinian I. emerged from obſcurity A. D. 538. From the domeſtic ſervice of the palace, and the adminiſtration of the private revenue, he roſe to the head of an army. A feeble diminutive body concealed the ſoul of a ſtateſman and a warrior, and the faculties of a vigorous and diſcerning mind. He ſtudied in the palace to flatter, and when he approached the emperor, Juſtinian liſtened with ſurpriſe to the manly counſels of his chamberlain. The talents of Narſes were tried and improved in frequent embaſſies; he led an army into Italy, acquired a practical knowledge of the war and the country, and preſumed to emulate Beliſarius. Twelve years after his return, the eunuch was appointed to achieve the conqueſt which had been left unfiniſhed by the firſt of the Roman generals. Narſes defeated the Goths, Franks, and Alemanni; the Italian cities opened their gates to him, he entered Rome in triumph, and having eſtabliſhed the ſeat of his government at Ravenna, continued 15 years to govern Italy under the title of EXARCH. His ruling vice was avarice. He accumulated a treaſure by means oppreſſive and unpopular; and the general diſcontent was expreſſed by the deputies of Rome, before Juſtinian. They boldly declared, that their Gothic ſervitude had been more tolerable than the deſpotiſm of a Greek eunuch; and that unleſs their tyrant were inſtantly removed, they would chooſe another maſter. Thus was his diſgrace the effect of the people's diſaffection. He died about A. D. 567, aged 95. See *Gibbon's Rom. Hiſt.* vol. iv. 4to edit. p. 194, 198, &c.

NARSINGAPATAM, a town of Indoſtan, in Myſore, and territory of Biſnagur; 400 miles SE. of Bombay. Lon. 76. 10. E. Lat. 15. 30. N.

(1.) NARVA, a ſtrong town of Ruſſia, in Livonia, or Revel, on the Narova, near the Gulf of Finland, built in 1224. It was taken by the Muſcovites from the Danes in 1558; and by the Swedes in 1581. Near it Charles XII. in 1700, his 19th year, defeated the Ruſſians, who loſt 6000 men killed and drowned, beſides many priſoners, and all their artillery; but, in 1705, it was retaken by Peter the Great, who, though he took it by ſtorm, gave an uncommon proof of humanity, by preventing his ſoldiers from pillaging it, and even killing two of them who would not deſiſt from plunder. It exports timber, hemp, flax, and corn; and imports ſalt, wine, herrings, tobacco, and groceries. It is 68 miles SW. of Peterſburg, 100 E. of Revel, and 172 NE. of Riga. Lon. 29. 0. E. Lat. 59. 18. N.

(2.) Narva, or Narova. See Narova.

NARVAL. See Monodon.

(1.) NARWAL, or (1.) NARWHALE, in ichthyology. See Monodon.

(2.) * Narwhale. *n. ſ.* A ſpecies of whale.—Thoſe long horns preſerved as precious beauties, are but the teeth of *narwhales*. *Brown's Vulg. Err.*

(1.) NARYCIA, a town of Greece, in Locris, the country of Ajax Oileus.

(2.) Narycia, NARYCIUM, or NARYX, a town of Italy, in Magna Græcia, built by a colony of Locrians, after the deſtruction of Troy. It abounded with pines and other trees. *Virg. Geor.* ii. 438. *Æn.* iii. 399.

* NAS. [from *ne has*, or *has not*.] Obſolete.

For pity'd is miſhap that *nas* remedy,
But ſcorn'd been deeds of fond foolery. *Spenſ.*

* NASAL. *adj.* [*naſus*, Lat.] Belonging to the noſe.—To pronounce the *naſals* and ſome of the vowels ſpiritally, the throat is brought to labour, and it makes a guttural pronunciation. *Holder's Elements of Speech.*—When the diſcharge leſſens, paſs a ſmall probe through the *naſal* duct into the noſe every time it is dreſt, in order to dilate it a little. *Sharp's Surgery.*

NASAS, a river of N. America, in New Biſcay, which joins the Sauceda in Lon. 84. 45. W. of Ferro. Lat. 25. 10. N. and forms the Palmas, which runs into the Gulf of Mexico, in Lon. 81° W. Lat. 25. N.

NASCIO, or Natio, a goddeſs of the Romans, ſuppoſed to preſide over the birth of children. She had a temple at Ardea.

NAZEARO, a river of Calabria Ultra.

NASEBY, a village of Northamptonſhire, memorable for the total defeat of the royal army under king Charles I. prince Rupert, lord Aſtley, and Sir Marmaduke Langdale, by that of the parliament, under Cromwell, Ireton, Fairfax, and Skippon. (See England, § 47.) This victory proved peculiarly fatal to the king, as a caſket of his letters to the queen fell into the enemy's hands, ſome of which were printed by the parliament, as proofs of his inſincerity with regard to the treaty of Uxbridge. Naſeby lies 12 miles N. of Northampton, and 78 NNW. of London. Lon. 1. 12. W. Lat. 52. 22. N.

(1.) NASH, Richard, Eſq. king of Bath, a ſingular character, born at Swanſea in South Wales, Oct. 18. 1674. His father was a gentleman, who was a partner in a glaſs-houſe; his mother was niece to Colonel Poyer, who was killed by Oliver Cromwell, in defending Pembroke Caſtle. He was educated at Caermarthen, and afterwards at Jeſus College, Oxford; but was diſmiſſed on account of an intrigue. He then entered into the army, as an enſign, but ſoon left it, and ſtudied law at the Temple, where he conducted a pageant for the entertainment of K. William III. the laſt of the kind that has been exhibited at the Inns on the acceſſion of any monarch. This was the firſt ſpecimen he gave of his abilities to become the public *arbiter eligantiarum*, a character in which he afterwards ſhined. King William was ſo well pleaſed, that he offered him knighthood, but Naſh declined it. His exhibition, however, procured him many friends. In 1704 he went to Bath, and ſoon after was appointed *King*, or maſter of the ceremonies, an office for which he was admirably qualified, by a peculiar elegant taſte, as well as uncommon vivacity; and in which he gave ſuch univerſal ſatisfaction, that he drew the whole *beau monde* to Bath, and was regarded as the benefactor of the city. Mean time he gained a great deal of money by gaming, as well as by the emoluments of his office; but his benevolence and generoſity were ſo unbounded, that he amaſſed no riches. Among innumerable inſtances of this diſpoſition, we ſhall only mention one. Having gained 100 guineas one day at the gaming table, a ſpectator remarked with what indifference Naſh drew to him that large ſum, which would make him happy for life. Naſh, ſhoving the money to him, ſaid, "Go man, and *be happy*." During the ſevere winter of 1739 his charity was extenſively beneficial; but the moſt permanent monument of his benevolence, is the public hoſpital at Bath, which was planned by him, and eſtabliſhed by his exertions and thoſe of Dr Oliver, and now admits 110 patients. He died at Bath, February 3, 1761, aged 87; and was interred in the abbey church, with all the honours due to the *monarch* of Bath.

(2.) Nash, Thomas, an ingenious Engliſh poet and divine, born in Suffolk, and educated at Cambridge. He publiſhed ſeveral poems, and died in 1600.

(3.) Nash, a county of North Carolina, in Halifax diſtrict; bounded N. by Halifax, E. by Edgcumbe, S. by Wayne, and W. by Franklin counties. It contained 5384 citizens and 2009 ſlaves, in 1795; and abounds with iron ore.

(4.) Nash, a town of Ireland, in Wexford.

(5—12.) Nash, the name of 8 Engliſh villages, in the counties of Bucks, Dorſet, Hants, Hereford, Kent, Monmouth, Salop, and Suſſex.

NASHAWEN, and NASHAWENNA, two of the Elizabeth Islands. They abound with cattle, and are famous for fine wool and cheeſe.

NASHUA, or } **NASHUAY,** } a river of Maſſachuſetts, which flows from a pond in Worceſter county, runs 15 miles NNE. into New Hampſhire, and thence 5 N. of the Maſſachuſetts line, till it falls into the Merrimack, three miles N. of Dunſtable.

NASHVILLE, a town of Tenneſſee, the capital of Mero diſtrict, and Davidſon county, on the S. ſide of the Cumberland. It was ſo named after General Naſh, who was killed at the battle of Germantown, October 4, 1777. It has an academy, and two churches for preſbyterians and methodiſts. It lies 190 miles S. by W. of Lexington, and 913 WSW. of Philadelphia. Lon. 84. 12. W. Lat. 37. 2. N.

NASICA. See Scipio, N° 4.

* **NASICORNOUS.** *adj.* [*naſus* and *cornu.*] Having the horn on the noſe.—Some unicorns are among inſects; as thoſe four kinds of *naſicornous* beetles deſcribed by Moffetus. *Brown.*

NASKOW. See Naxkow.

NASO, the cognomen of Ovid.

(1.) **NASSAU,** a fertile county of Germany, in the circle of the Upper Rhine, and diſtrict of Wetteravia, about 48 miles long and 28 broad. In the 10th century it was poſſeſſed by Otho, lord of Lamenberg, whoſe deſcendant, count Henry I. about 1225, divided it between his ſons Walram and Otho, the former receiving Weilburg, Wiſbaden, and Iſtein; the latter Siegen, Dillenburg, Herborn, Hadamar, &c. which gave riſe to the different branches of the preſent princes.

(2.) **Nassau,** the capital of the above county, is ſeated on the Lahn, 12 miles SE. of Coblentz, and 22 NW. of Mentz.

(3.) **Nassau,** Maurice of. See Maurice, N° 4.

(4.) **Nassau,** a river of Eaſt Florida.

(5.) **Nassau,** a mountain of Jamaica, 50 miles WNW. of Kingſton.

(6.) **Nassau,** a town of Pennſylvania, in Dauphin county, with a German church.

(7.) **Nassau,** the capital of Providence iſland. Lat. 25. 3. N.

(8.) **Nassau,** an iſland in the Eaſt Indian Ocean, W. of Sumatra, 50 miles in circuit. Lon. 100. 0. W. Lat. 2. 25. S.

(9.) **Nassau Bay,** an extenſive bay on the S. coaſt of Terra del Fuego, at the S. extremity of S. America, E. of Falſe Cape Horn; well ſheltered from all ſtorms.

(10.) **Nassau Bay,** or **Spirito Santo,** a large bay on the coaſt of W. Florida, 70 miles long from N. to S. and 15 broad.

(11.) **Nassau, Cape,** a cape of Surinam, NNW. of Eſſequibo Gulf. Lon. 59. 30. W. Lat. 7. 40. N.

(12.) **Nassau Dietz.** See Dietz, N° 1.

(13.) **Nassau Dillenburg,** a principality of Germany, ſituated near Naſſau Siegen (N° 19.) It has not much arable land, but plenty of wood, good quarries of ſtone, ſome ſilver, copper, lead, vitriol, and plenty of iron; for the working and ſmelting of which there are many forges and founderies, whereby the inhabitants chiefly ſubſiſt. Calviniſm is the eſtabliſhed religion. The principality contains 5 towns and two boroughs, and belongs entirely to William V. prince of Orange, whoſe father ſucceeded to a part of it, in 1739, on the death of prince Chriſtian, and t the reſt in 1743, on the death of prince Willia Hyacynth. The prince, on account of this pri cipality and Dietz, has a ſeat at the diets of th empire and circle. His revenue is computed above 130,000 florins. See Dillenburgh, N 1 and 2.

(14.) **Nassau Fort,** a fort of Holland, in th iſle of Cadſand, and department of the Meuſe.

(15.) **Nassau Hadamar,** a county of Germa which, till 1711, had princes of its own; but now belongs to William V. prince of Orange. Se Hadamar.

(16.) **Nassau Island,** an iſland of New York, the mouth of the Byram, in Long Iſland Sound.

(17.) **Nassau Road,** one of the beſt roads f large ſhips on the coaſt of Weſt Florida, lies fi miles W. of Mobile Bay.

(18.) **Nassau Saarbruck,** a ci-devant coun of Germany, in the late electorate of Treves; now annexed to the French empire, and included i the department of the Rhine and Moſelle. Se Sarbruck.

(19.) **Nassau Siegen,** a ſmall principality o Germany in the Weſterwalde. It is in gener mountainous and woody, but has ſome arable and paſture ground, and a good breed of cattl Its manufactures are chiefly thoſe of iron an ſteel, having an iron mine near Siegen. See Siege Count John II. in 1626, embraced the Roma Catholic religion, and endeavoured to introdu it into the country; but the principality, upo the extinction of the line of Naſſau-Siegen, i 1743, falling to the line of Naſſau-Dietz, an therein to the prince of Orange, the Proteſtan were delivered from their apprehenſions of Popi tyranny and bigotry. The prince, by theſe te ritories, has a ſeat at the diets of the empire an circle. His revenue is eſtimated at 100,000 ri dollars.

(20.) **Nassau Weilburg,** a principality o Germany, in the circle of the Upper Rhine, a the Lahn and E. bank of the Rhine. Weilburg is the capital.

* **NASTILY.** *adv.* [from *naſty.*] 1. Dirtily, filthily; nauſeouſly.—The moſt pernicious infec tion next the plague, is the ſmell of the jail, when priſoners have been long and cloſe and *naſtily* kep. *Bacon.* 2. Obſcenely; groſsly.

* **NASTINESS.** *n. ſ.* [from *naſty.*] 1. Dirt; filth.—This cauſed the ſeditious to remain with their ſtation, which, by reaſon of the *naſtineſs* o the beaſtly multitude, might more fitly be terme a kennel than a camp. *Hayward.*—

Such *naſtineſs* and ſo much pride
Are oddly join'd by fate. *Pope.*

2. Obſcenity; groſſneſs of ideas.—Their *naſtine* their dull obſcene talk and ribauldry, cannot be be very nauſeous and offenſive to any who doe not baulk his own reaſon, out of love to the vice. *South.*—A divine might have employed hi pains to better purpoſe, than in the *naſtineſs* o Plautus and Ariſtophanes. *Dryden.*

NASTISTAK, an iſland of Ruſſia, in the Lena, 80 miles long and 20 broad. Lon. 133. 26. to 13 20. E. Ferro. Lat. 71. 44. to 72. 50. N.

* **NASTY.** *adj.* [*naſt, nat,* German, wet.] 1. Dirty; filthy; ſordid; nauſeous; polluted.—Sir

Thomas More, in his anſwer to Luther, has hrown out the greateſt heap of *naſty* language hat perhaps ever was put together. *Atterbury.*—A nice man, is a man of *naſty* ideas. *Swift.* 2. Obſcene; lewd.

NATA, a town of Terra Firma, in Panama, founded in 1517, and inhabited by a mixed breed of Spaniards and Indians. It is 75 miles SW. of Panama. It gives name to the bay.

(1.) * NATAL. *adj.* [*natal*, Fr. *natalis*, Lat.] Native; relating to nativity.—Since the time of Henry III. princes children took names from their *natal* places, as Edward of Carnarvon, Thomas of Brotherton, *Camden.*—

Propitious ſtar! whoſe ſacred pow'r
Preſided o'er the monarch's *natal* hour. *Prior.*

(2.) Natal, a country of Africa, SE. of Caffraria, and W. of the Cape of Good Hope, beyond St Chriſtopher's river; ſo named by the Portugueſe, becauſe it was diſcovered on Chriſtmas day. See Hottentots, § 2.

(3.) Natal, a river of Africa, which bounds the above country on the N. and runs into the Indian Ocean.

NATANGEN, a populous and fertile prov. of Pruſſia, bounded N. and E. by the Pregel, S. by Ermeland, and W. by the Friſche-haff. It is well cultivated. Brandenburg is the capital.

* NATATION. *n. ſ.* [*natatio*, Latin.] The act of ſwimming.—In progreſſive motion, the arms and legs move ſucceſſively, but in *natation* both together. *Brown.*

NATCHES, or (1.) NATCHEZ, a nation of North American Indians, formerly very powerful, who inhabited the country on the E. bank of the Miſſiſippi. The Creeks or Muſkogulges roſe upon their ruins, and the French completed their deſtruction in 1730. The remains of them are incorporated with the Creeks. See Muskogulge.

(2.) Natchez, an Indian town of the Creeks, in Georgia.

(3.) Natchez, the name ſtill given to that diſtrict of Georgia, on the E. bank of the Miſſiſippi, formerly poſſeſſed by the Natchez Indians. The ſurface is level; the ſoil very fertile; the water and climate excellent. All kinds of grain and fruits are produced, beſides hemp, flax, hops, cotton, tobacco, indigo, mulberry, and other trees. It extends about 32 miles from Petit Goufre to Fort Roſalie, which lies 243 miles above new Orleans, in Lat. 31. 40, N.

(1.) NATCHITOCHES, or Red river, a river of Louiſiana, which runs into the Miſſiſippi, in Lon. 91. 47. W. Lat. 31. 15. N.

(2.) Natchitoches, an American Indian town and ſettlement, on an iſland in the above river; 70 leagues above its mouth, and 40 miles from Fort Adayes. Lon. 93. 28. W. Lat. 32. 11. N.

NATENENE, a town of Ireland in Kerry.

NATERS, a town of Switzerland, in the Valais, now annexed to the French empire; 29 m. E. of Sion.

(1.) NATES, in anatomy, a term expreſſing thoſe two fleſhy exterior parts of the body vulgarly called the *buttocks*. See Anatomy.

(2.) Nates Cerebri, are two circular protuberances of the brain, ſituated on the back ſide of the medulla oblongata, near the cerebellum. See Anatomy, § 467.

(1.) NATHAN, a faithful prophet and hiſtorian of Iſrael, under David and Solomon; ſuppoſed to be the author of the 2d book of Samuel, and of the latter part of the 1ſt book: Be that as it may, we are certain, that he wrote the hiſtory of David and Solomon. (See 1 Chron. xxix, 29; 2. Chron. ix 29.) Some commentators think from theſe texts, that he was aſſiſted in compiling theſe hiſtorical works by Gad and Abijah; but the texts ſeem evidently to refer to the books of *Samuel*, *Gad*, *Abijah*, and *Iddo*, as diſtinct works, and even under different titles, of *books*, *prophecies*, and *viſions*. Nathan's affecting parable of the ewe-lamb, his bold reproof of David for his crimes, his prohibition of his building the temple, and his ſeaſonable advice, whereby the uſurpation of Adonijah was overthrown, are recorded in 2 Sam. vii. xii; and 1 Kings i.

(2.) Nathan, a ſon of David by Bathſheba, probably named after the prophet, the lineal anceſtor of our Saviour by the maternal line.

(3.) Nathan, Iſaac, or Mordecai, a learned Jewiſh lexicographer; the firſt who compiled *A Hebrew Concordance*. He began it in 1438, and finiſhed it in 1448. It was firſt printed at Venice, in 1523.

NATHANAEL. See Bartholomew, N° 1.

* NATHLESS. *adj.* [*na*, that is, *not the leſs*, Saxon.] Nevertheleſs: formed thus: *natheleſs*, *nath'leſs*. Obſolete.—

Nathleſs, my brother, ſince we paſſed are
Unto this point, we will appeaſe our jar. *Spenſ.*
The torrid clime
Smote on him ſore beſides, vaulted with fire,
Nathleſs he ſo endur'd, till on the beach
Of that inflamed ſea he ſtood, and call'd
His legions. *Milton.*

* NATHMORE. *adv.* [*na the more.*] Never the more. Obſolete.—

Yet *nathmore* by his bold hearty ſpeech,
Could his blood-frozen heart embolden'd be.
Spenſer.

NATICK, a townſhip of Maſſachuſetts, in Middleſex county, on the Charles: 18 miles SW. of Boſton.

NATIO. See Nascio.

* NATION. *n. ſ.* [*nation*, French; *natio*, Lat.] 1. A people diſtinguiſhed from another people; generally by their language, original, or government.—If Edward III. had proſpered in his French wars, and peopled with Engliſh the towns which he won, as he began at Calais, driving out the French, his ſucceſſors, holding the ſame courſe, would have filled all France with our *nation*. *Raleigh.*—A *nation* properly ſignifies a great number of families derived from the ſame blood, born in the ſame country, and living under the ſame government. *Temple.* 2. A great number: emphatically.—

After battle I the field have ſeen
Spread o'er with ghaſtly ſhapes, which once were men;
A *nation* cruſht! a *nation* of the brave! *Young.*

(1.) * NA-

(1.) * NATIONAL. *adj.* [*national*, Fr. from *nation*.] 1. Public; general; not private; not particular.—

They, in their earthy Canaan plac'd,
Long time ſhall dwell and proſper; but when ſins
National interrupt their public peace. *Milton.*

—Such a *national* devotion inſpires men with ſentiments of religious gratitude, and ſwells their hearts with joy and exultation. *Addiſon.*—The aſtoniſhing victories our armies have been crowned with, were in ſome meaſure the bleſſings returned upon that *national* charity which has been ſo conſpicuous. *Addiſon.*—God, in the execution of his judgments, never viſits a people with public and general calamities, but where their ſins are public and *national* too. *Rogers.* 2. Bigoted to one's own country.

(2.) NATIONAL ASSEMBLY. } See FRANCE,
(3.) NATIONAL CONVENTION. } § 61; and REVOLUTION.

(4.) NATIONAL DEBT; the money owing by the Britiſh government. Our limits permit us to give but a very general ſketch of this ſubject: However, as it is of conſiderable importance to every inhabitant of theſe kingdoms, we ſhall endeavour to give as clear and comprehenſive a view of it as the bounds neceſſarily preſcribed us will admit. For this purpoſe it is proper to refer back to the times that have gone before us, that we may diſcover the nature of public revenues, the manner of their expenditure, and the cauſes of public debt. In that rude ſtate of ſociety, which precedes the extenſion of commerce and the improvements of manufactures, when thoſe expenſive luxuries which commerce and manufactures can alone introduce, are altogether unknown; the perſon, who poſſeſſes a large revenue, can ſpend or enjoy that revenue in no other way than by maintaining nearly as many people as it can maintain. Among our feudal anceſtors, the long time during which eſtates uſed to continue in the ſame family, ſufficiently demonſtrates the general diſpoſition of people to live within their income. Though hoſpitality was conſtantly exerciſed by the great landholders, yet they certainly lived within their income. They could not well indeed do any thing elſe but hoard whatever money they ſaved. To trade was diſgraceful to a gentleman; and to lend money at intereſt, which was then conſidered as uſury, and prohibited by law, would have been ſtill more ſo. The ſame diſpoſition to ſave and to hoard prevailed in the ſovereign as well as in the ſubjects. Among nations to whom commerce and manufactures are little known, the ſovereign is in a ſituation which naturally diſpoſes him to the parſimony requiſite for accumulation. In that ſituation, the expenſe even of a ſovereign cannot be directed by that vanity which delights in the gaudy finery of a court. The ignorance of the times affords but few of the trinkets in which that finery conſiſts. Standing armies are not then neceſſary; ſo that the expenſe even of a ſovereign, like that of any other great lord, can be employed in ſcarce any thing but bounty to his tenants and hoſpitality to his retainers. But bounty and hoſpitality very ſeldom lead to extravagance, though vanity almoſt always does. All the ancient ſovereigns of Europe according had treaſures. Every Tartar chief in the preſe times is ſaid to have one. In a commercial cou try, abounding with every ſort of expenſive luxur the ſovereign, in the ſame manner as almoſt all t great proprietors in his dominions, naturally ſpe a great part of his revenue in purchaſing th luxuries. His own and the neighbouring cou tries ſupply him abundantly with all the co trinkets which compoſe the ſplendid but inſig ficant pageantry of a court. His ordinary expe becomes equal to his ordinary revenue, and it well if it does not exceed it. The amaſſing treaſure can no longer be expected; and wh extraordinary exigencies require extraordinary penſes, he muſt neceſſarily call upon his ſubje for an extraordinary aid. The parſimony wh leads to accumulation has become almoſt as r in republican as in monarchical governments. T taſte for ſome ſort of pageantry, for ſplen buildings at leaſt, and other public ornamen frequently prevails as much in the apparently ber ſenate-houſe of a little republic, as in the d ſipated court of the greateſt king. The want parſimony in time of peace, impoſes the neceſſ of contracting debt in time of war. When w comes, there is no money in the treaſury but wh is neceſſary for carrying on the ordinary expe of the peace eſtabliſhment. In war an eſtabl ment of three or four times that expenſe becom neceſſary for the defence of the ſtate, and con quently a revenue three or four times greater th the peace revenue. Suppoſing that the ſoverei ſhould have, what he ſcarce ever has, the imme diate means of augmenting his revenue in propor tion to the augmentation of his expence; yet ſt the produce of the taxes, from which this increa of revenue muſt be drawn, will not begin to com into the treaſury till perhaps a year after they imposed. But the moment in which war begins or rather the moment in which it appears likel to begin, the army muſt be augmented, the fleet muſt be fitted out, the garriſoned towns muſt put into a poſture of defence; they muſt be fur niſhed with arms, ammunition, and proviſions. A immediate and great expenſe muſt be incurred that moment of immediate danger, which will not wait for the gradual and ſlow returns of the ne taxes. In this exigency government can have n other reſources but in borrowing. The ſame commercial ſtate of ſociety, which, by the operation moral cauſes, brings a government in this manne into the neceſſity of borrowing, produces in th ſubjects both an ability and an inclination to le If it commonly brings along with it the neceſſi of borrowing, it likewiſe brings along with it t facility of doing ſo. A country abounding wi merchants and manufacturers, neceſſarily abound with a ſet of people through whoſe hands not only their own capitals, but the capitals of all tho who either lend them money or truſt them wi goods, paſs as frequently or more frequently tha the revenue of a private man, who without tra or buſineſs lives upon his income, paſſes throu his hands. The revenue of ſuch a man can regularly paſs through his hands only once in a year but the whole amount of the capital and credit o a merchant, who deals in a trade of which the re turns are very quick, may ſometimes paſs through his hands two, three, or four times in a year. A country abounding with merchants and manufacterers, therefore, neceſſarily abounds with a ſet of people, who have it at all times in their power to advance, if they pleaſe, a very large ſum of money to government. Hence the ability in the ſubjects of a commercial ſtate to lend. The progreſs of the enormous debts, which at preſent oppreſs, and will at laſt probably ruin, all the great nations of Europe, has been pretty uniform. In England, after the Revolution, when new connections with Europe introduced a new ſyſtem of foreign politics, the expenſes of the nation, not only in ſettling the new eſtabliſhment, but in maintaining long wars, as principals, on the continent, for the ſecurity of the Dutch barrier, reducing the French monarchy, ſettling the Spaniſh ſucceſſion, ſupporting the houſe of Auſtria, maintaining the liberties of the Germanic body, and other purpoſes, increaſed to an unuſual degree: inſomuch, that it was not thought adviſeable to raiſe all the expenſes of any one year by taxes to be levied within that year, leſt the unaccuſtomed weight of them ſhould create murmurs among the people. It was therefore the policy of the times to anticipate the revenues of their poſterity, by borrowing immenſe ſums for the current ſervice of the ſtate, and to lay no more taxes upon the ſubject than would ſuffice to pay the annual intereſt of the ſums ſo borrowed; thus converting the principal debt into a new ſpecies of property, transferable from one man to another at any time and in any quantity. This ſyſtem indeed ſeems to have had its original in the ſtate of Florence, A. D. 1344; which government then owed about L.60,000 ſterling; and being unable to pay it, formed the principal into an aggregate ſum, called metaphorically a *mount* or *bank*, the ſhares whereof were transferable like our ſtocks, with intereſt at 5 per cent. the prices varying according to the exigencies of the ſtate. This laid the foundation of what is called the *national debt;* for a few long annuities created in the reign of Charles II. will hardly deſerve that name. Nations, like private men, have generally begun to borrow upon what may be called *perſonal credit*, without aſſigning or mortgaging any particular fund for the payment of the debt; and when this reſource has failed them, they have gone on to borrow upon aſſignments or mortgages of particular funds. What is called the *unfunded debt of Great Britain*, has been contracted in the former of theſe two ways. It conſiſts partly in a debt which bears, or is ſuppoſed to bear, no intereſt, and which reſembles the debts that a private man contracts upon his bill or promiſſory note. The debts which are due either for extraordinary ſervices, or for ſervices either not provided for, or not paid at the time when they are performed; part of the extraordinaries of the army, navy, and ordnance, the arrears of ſubſidies to foreign princes, thoſe of ſeamens wages, &c. uſually conſtitute a debt of the firſt kind. Navy and exchequer bills, which are iſſued ſometimes in payment of a part of ſuch debts, and ſometimes for other purpoſes, conſtitute a debt of the 2d kind; exchequer bills bearing intereſt from the day on which they are iſſued, and navy bills ſix months after they are iſſued. The bank of England, either by voluntarily diſcounting thoſe bills at their current value, or by agreeing with government for certain conſiderations to circulate exchequer bills, that is, to receive them at par, paying the intereſt which happens to be due upon them, keeps up their value, and facilitates their circulation, and thereby frequently enables government to contract a very large debt of this kind. During the great recoinage in K. William's time, when the bank of England thought proper to put a ſtop to its uſual tranſactions, exchequer bills and tallies are ſaid to have ſold from 25 to 60 per cent. diſcount; owing partly, no doubt, to the ſuppoſed inſtability of the new government eſtabliſhed by the Revolution, but partly too to the want of the ſupport of the bank of England. When this reſource is exhauſted, and it becomes neceſſary, in order to raiſe money, to aſſign or mortgage ſome particular branch of the public revenue for the payment of the debt, government has upon different occaſions done this in two different ways. Sometimes it has made this aſſignment or mortgage for a ſhort period of time only, a year or a few years, for example; and ſometimes for perpetuity. In the one caſe, the fund was ſuppoſed ſufficient to pay within the limited time both principal and intereſt of the money borrowed: In the other, it was ſuppoſed ſufficient to pay the intereſt only, or a perpetual annuity equivalent to the intereſt; government being at liberty to redeem at any time this annuity upon paying back the principal ſum borrowed. When money was raiſed in the one way, it was ſaid to be raiſed *by anticipation;* when in the other, *by perpetual funding*, or, more ſhortly, *by funding*. In the reign of K. William III. when the debt began to be amaſſed, and during a great part of that of Q. Anne, before we had become ſo familiar as we are now with the practice of perpetual funding, the greater part of the new taxes were impoſed but for a ſhort period of time (for four, five, ſix, or ſeven years only), and a great part of the grants of every year conſiſted in loans upon anticipation of the produce of thoſe taxes. The produce being frequently inſufficient for paying within the limited term the principal and intereſt of the money borrowed, deficiencies aroſe; to make good which it became neceſſary to prolong the term. On the 31ſt of December 1697, the funded and unfunded debts amounted to L.21,515,742:13:8¼; but ſoon after, in 1714, they were L.53,681,076:5:6$\frac{1}{12}$. In 1755, before the breaking out of the war, they amounted to L.72,289,673; and on the 5th of January 1763, at the concluſion of the peace, they had accumulated to L.122,603,336:8:2¼ of funded debt, and of unfunded L.13,027,589:2:2 more. In 1775, they were very nearly 130 millions; and the American war added upwards of 120 millions more to that enormous ſum: to pay the intereſt of which, and the charges of management, amounting annually to nearly eight millions and an half, the extraordinary revenues elſewhere enumerated, (ſee REVENUE,) excepting only the land-tax and annual malt-tax) are in the firſt place mortgaged and made perpetual by parliament.

In conſequence of the expenſes incurred by the late French war, the national debt, as ſtated by J. Nicholls, Eſq. M. P. in his ſpeech on the 7th May 1802, had increaſed 258 millions. To pay the intereſt of this enormous ſum, the revenue is made perpetual, but ſtill redeemable by the ſame authority that impoſed them; which, if it at any time can pay off the capital, will aboliſh thoſe taxes which are raiſed to diſcharge the intereſt. By theſe means, then, the quantity of property in the kingdom is greatly increaſed in idea compared with former times; yet, if we coolly conſider it, not at all increaſed in reality. We may boaſt of large fortunes, and quantities of money in the funds: but where does this money exiſt? It exiſts only in name, in paper, in public faith, in parliamentary ſecurity; and that is undoubtedly ſufficient for the creditors of the public to rely on. But then what is the pledge which the public faith has pawned for the ſecurity of theſe debts? The land, the trade, and the perſonal induſtry of the ſubject; from which the money muſt ariſe that ſupplies the ſeveral taxes. In theſe, therefore, and theſe only, the property of the public creditors does really and intrinſically exiſt; and of courſe the land, the trade, and the perſonal induſtry of individuals, are diminiſhed in their true value, juſt ſo much as they are pledged to anſwer. If A's income amounts to L. 100 per annum; and he is ſo far indebted to B, that he pays him L. 50 per annum for his intereſt; one half of the value of A's property is transferred to B the creditor. The creditor's property exiſts in the demand which he has upon the debtor, and no where elſe; and the debtor is only a truſtee to his creditor for one half of the value of his income. In ſhort, the property of a creditor of the public conſiſts in a certain portion of the national taxes; by how much therefore he is the richer, by ſo much the nation, which pays theſe taxes, is the poorer. The only advantage, that can reſult to a nation from public debts, is the increaſe of circulation, by multiplying the caſh of the kingdom, and creating a new ſpecies of currency, aſſignable at any time and in any quantity; always therefore ready to be employed in any beneficial undertaking, by means of this its transferable quality; and yet producing ſome profit even when it lies idle and unemployed. A certain proportion of debt ſeems to be highly uſeful to a trading people; but what that proportion is, it is not for us to determine. This much is indiſputably certain, that the preſent magnitude of our national incumbrances very far exceeds all calculations of commercial benefit, and is productive of the greateſt inconveniences. For, firſt, the enormous taxes, that are raiſed upon the neceſſaries of life for the payment of the intereſt of this debt, are a hurt both to trade and manufactures, by raiſing the price as well of the artificer's ſubſiſtence as of the raw material, and of courſe, in a much greater proportion, the price of the commodity itſelf. Nay, the very increaſe of paper currency itſelf, when extended beyond what is requiſite for commerce or foreign exchange, has a natural tendency to increaſe the price of proviſions as well as of all other merchandiſe. For as its effect is to multiply the caſh of the kingdom, and this to ſuch an extent that much muſt remain unemployed, that caſh (which is the univerſal meaſure of the reſpective values of all other commodities) muſt neceſſarily ſink in its own value, and every thing grow comparatively dearer. 2dly, If part of this debt be owing to foreigners, either they draw out of the kingdom annually a conſiderable quantity of ſpecie for the intereſt; or elſe it is made an argument to grant them unreaſonable privileges to induce them to reſide here. 3dly, If the whole be owing to ſubjects only, it is then charging the active and induſtrious ſubject, who pays his ſhare of the taxes, to maintain the indolent and idle creditor who receives them. Laſtly, and principally, it weakens the internal ſtrength of a ſtate, by anticipating thoſe reſources which ſhould be reſerved to defend it in caſe of neceſſity. The intereſt we now pay for our debts would undoubtedly be ſufficient to maintain the moſt vigorous war that any national motives could poſſibly require. If indeed our anceſtors in King William's time had annually paid, ſo long as their exigencies laſted, a leſs ſum than we now annually raiſe upon their accounts, they would not in time of war have borne ſo great burdens as they have bequeathed to and ſettled upon their poſterity in time of peace; and might have been eaſed the inſtant the exigence was over. See FUNDS, § 3. Many ſchemes have been propoſed at various times and by various perſons for gradually removing this burden: but we muſt refer ſuch as wiſh for farther information on this intereſting topic to thoſe works, which treat of it at full length; particularly *Smith's Wealth of Nations*, and *Sir John Sinclair's Hiſtory of the Revenue*. The writings of Dr Price alſo merit attention, eſpecially as one of his plans for the reduction of the debt has been adopted, and eſtabliſhed, by the legiſlature. His three plans may be found in a late pamphlet by William Morgan, intitled, A Review of Dr Price's Writings on the Subject of the Finances of this Kingdom. We cannot cloſe however, without quoting an intelligent writer on this ſubject, who ſigns J. J. G. in the *Monthly Magazine* for Sept. 1798, and gives a Statement of the National Debt at Midſummer, 1798; the total amount of which, funded and unfunded, he ſtates thus:

Funded Debt, -	L.454,924,967 : 17 : 4¾;
Unfunded Debt,	13,500,000 : 0 : 0.
Total of both	L.468,424,967 : 17 : 4¾.

The intereſt and management he ſtates at L. 16,830,149 : 11 : 2¼d. "This ſtatement (he adds) is formed according to the uſual mode of eſtimating the amount of the debt; but it is well known, that the capital thus ſtated greatly exceeds the ſum that has been *actually* borrowed by government. This ariſes from a practice introduced in 1711, of *creating a greater debt than the ſum received*, or entitling the lenders to a premium payable with the proper debt, and bearing intereſt as if it were money *really* advanced, which, when there was a probability of repayment at par, was certainly an inducement to the lenders to accept of a leſs rate of intereſt than they would otherwiſe have taken; and as it thus diminiſhed the *preſent* burden of new loans, though it greatly increaſed the *future* incumbrances, has been often adopted by our Chancellors of the Exchequer in their contracts with money lenders, particularly of late years." Upon theſe principles this writer deducts no leſs a ſum than L.22,499,406 : 18 : 1, for the additional capitals thus granted on the loans, and thus reduces the ſum total of money actually received by government to L.337,061,643 : 5 : 8¼. "The nominal capital (he adds) of the funded debt thus appears to be L. 35 per cent. greater than the ſum received, and the difference would appear ſtill greater, if a deduction were made for the profits of lotteries relinquiſhed, the diſcounts allowed to lenders for prompt payment, &c. It is almoſt needleſs to add, that the national debt has been prodigiouſly increaſed ſince 1798; and the ſubject has been rendered peculiarly intricate of late by the diſcuſſion upon bullion, gold, and ſilver; and on the ſuppoſed depreciation of bank paper, ariſing, as is preſumed, from an extravagant iſſue of paper, and this again from the reſtriction preventing the bank from paying in ſpecie.

(5.) NATIONAL INSTITUTE, or NEW ACADEMY OF ARTS AND SCIENCES, a celebrated Literary and Philoſophical Society at Paris, conſiſting of the moſt learned men and the moſt eminent literary characters in the French republic; *inſtituted* in the beginning of the revolution about the time when the ROYAL ACADEMIES, and every thing elſe that had the name of *Royal*, was altered or aboliſhed. This Academy, founded on a decree of the new conſtitution, was opened on the 7th of Dec. 1795, when Benezech, the then miniſter for the home department, attended, and the decree of foundation was read; which was to the following purport: "The Academy of Arts and Sciences belongs to the republic, and Paris is its place of reſidence. Its employment is to aim at bringing all arts and ſciences to the utmoſt perfection of which they are capable. It is to notice every new attempt, and all new diſcoveries, and to keep up a correſpondence with all foreign literary ſocieties. And by the particular orders of the Executive Directory, its firſt ſtudies are to be directed to thoſe ſubjects which more immediately tend to the reputation and advantage of the French republic." The academy is to conſiſt of 288 members, half of whom are to reſide in Paris, the other half in the departments; and to them is to be added a certain number of foreigners, as honorary members, confined at preſent to 24. The academy is divided into three claſſes, each claſs into ſections, each ſection to contain 12 members. *1ſt claſs.* Mathematics and Natural philoſophy. This claſs is divided into ten ſections. 1. Mathematics. 2. Mechanical arts. 3. Aſtronomy. 4. Experimental philoſophy. 5. Chemiſtry. 6. Natural hiſtory. 7. Botany. 8. Anatomy and animal hiſtory. 9. Medicine and ſurgery. 10. Animal œconomy, and the veterinary ſcience. *2d claſs.* Morality and politics. This claſs conſiſts of ſix ſections. 1. Analyſis of ſenſations and ideas. 2. Morals. 3. Legiſlature. 4. Political economy. 5. Hiſtory. 6. Geography. *3d claſs.* Literature and the fine arts. This claſs conſiſts of eight ſections. 1. Univerſal grammar. 2. Ancient languages. 3. Poetry. 4 Antiquities. 5. Painting. 6. Sculpture. 7. Architecture. 8. Muſic. For each claſs a particular room in the Louvre is appropriated. No one can be a member of two claſſes at the ſame time, but a member of one claſs may be preſent at the meetings of any other. Each claſs is to print, yearly, an account of its tranſactions. Four times a-year there are to be public meetings. On theſe occaſions, the three claſſes meet together. At the end of each year, they are to give a circumſtantial account to the legiſlative body of the progreſs made in that year in the arts and ſciences. The prizes given yearly by each claſs are to be publicly notified at certain times. The ſums requiſite for the ſupport of the inſtitution are to be decreed yearly by the legiſlative body, upon a requiſition made by the Executive Directory. The firſt forty-eight members were choſen by the Executive Directory, to whom the choice of the remaining members was confided. To the members reſidentiary in Paris, is reſerved the choice both of the department and the foreign members. On a vacancy in any claſs, three candidates are named by the claſs for the choice of the body at large. Each claſs is to have, at its place of meeting, a collection of the products, both of nature and art, and a library, according to its particular wants. The regulations of the inſtitution, with reſpect to the times of meeting, and its employments, are to be drawn up by the body at large, and laid before the legiſlative aſſembly. The hall in which the body at large holds its meetings, forms part of the weſt wing of the Old Louvre, at preſent called the Muſeum. It formerly went by the appellation of the Hall of Antiques (*Salle des Antiques*); and as long as the kings inhabited this part of the palace, was occupied by their guards, from which circumſtance it obtained the name of the Hall *des Cent Suiſſes*. It was likewiſe appropriated to banquets and entertainments given by the court on gala days; and it was to this place that Henry IV. was conveyed, on his aſſaſſination by Ravaillac, in the *Rue de la Ferronerie*. It was built at the ſame time with the reſt of this part of the Louvre, about the year 1528, after the deſigns of Pierre Leſcot, abbot of Clagny. It is 144 feet in length, and 40 in breadth, and holds from 1000 to 1200 perſons. In order to adapt it to its new deſtination, the floor has been ſunk, which gives a greater air of lightneſs to the roof. In the centre ſtands a double table, in the form of a horſe-ſhoe, ſupported by ſphinxes, at which the members of the inſtitute take their ſeats. This table is ſurrounded by two tiers of benches, which are raiſed for the accommodation of ſpectators, who have likewiſe ſeats provided for them in the vaſt embraſures of the windows, and at each extremity of the hall. Whether ſcience will be advanced by the ſeven royal academies having been melted into one, time muſt determine; but candour compels us to acknowledge, that the proceedings of the national inſtitute have hitherto been abundantly intereſting. Bonaparte, who affects to imitate the character of Auguſtus in his love of *literature*, as well as in his love of *power*, has, on various occaſions, boaſted of his being a member of the national inſtitute, and has even correſponded with foreign univerſities, particularly that of Edinburgh, as a leading member of that learned body.

* NATIONALLY. *adv.* [from *national.*] With regard to the nation.—The term adulterous chiefly relates to the Jews; who being nationally eſpouſed to God by covenant, every ſin of theirs was in a peculiar manner ſpiritual adultery. *South.*

* NATIONALNESS. *n. ſ.* [from *national.*] Reference to the people in general.

Nations, Six. See Iroquois, Niagara, and Six Nations.

NATISO, or Natisone. See Natizone.

(1.) * NATIVE. *adj.* [*nativus*, Latin; *natif-ve*, Fr.] 1. Produced by nature; natural, not artificial.—

She more ſweet than any bird on bough,
Would oftentimes amongſt them bear a part,
And ſtrive to paſs, as ſhe could well enough,
Their *native* muſic by her ſkilful art. *Spenſer.*
This doctrine doth not enter by the ear,
But of itſelf is *native* in the breaſt. *Davies.*

2. Natural; ſuch as is according to nature; original.—The members, retired to their homes, reaſſume the *native* ſedateneſs of their temper. *Swift.* 3. Conferred by birth, belonging by birth.—

But ours is a privilege ancient and *native*,
Hangs not on an ord'nance. *Denham.*

4. Relating to the birth; pertaining to the time or place of birth.—If theſe men have defeated the law, and outrun *native* puniſhment; though they can outſtrip men, they have no wings to fly from God. *Shak. Henry V.*

Many of our bodies ſhall, no doubt,
Find *native* graves. *Shak. Henry V.*

5. Original; that which gave being.—

Have I now ſeen death? is this the way
I muſt return to *native* duſt? *Milton.*

(2.) * Native. *n. ſ.* 1. One born in any place; original inhabitant.—Make no extirpation of the *natives*, under pretence of planting religion. *Bacon's Adviſe to Villiers.*—

The lowly *native* of a country town. *Dryd.*

—There ſtood a monument to Tacitus the hiſtorian, to the emperors Tacitus and Florianus, *natives* of the place. *Addiſon.*—Our *natives* have a fuller habit, ſquarer, and more extended cheſts, than the people that be beyond us to the ſouth. *Black.* 2. Offspring.—

The accuſation,
All cauſe unborn, could never be the *native*
Of our ſo frank donation. *Shak. Coriolanus.*

* NATIVENESS. *n. ſ.* [from *native.*] State of being produced by nature.

(1.) * NATIVITY. *n. ſ.* [*nativité*, French.] 1. Birth; iſſue into life.—Concluding ever with a thankſgiving for the *nativity* of our Saviour, in whoſe birth the births of all are only bleſſed. *Bacon.*—They looked upon thoſe as the true days of their *nativity*, wherein they were freed from the pains and ſorrows of a troubleſome world. *Nelſon.* 2. Time, place, or manner of birth.—

My huſband, and my children both,
And you the calenders of their *nativity*,
Go to a goſſip's feaſt. *Shak. Com. of Errors.*

—They ſay there is divinity in odd numbers, either in *nativity*, chance, or death. *Shak.*—

When I vow, I weep; and vows ſo born,
In their *nativity* all truth appears. *Shak.*

—Thy birth and thy *nativity* is of Canaan. *Ezek.* xvi. 3. 3. State or place of being produced.—

Theſe, in their dark *nativity*, the deep
Shall yield us, pregnant with infernal flame. *Milton.*

(2.) Nativity is alſo uſed for Natal day, the day of a perſon's birth; in ſpeaking of the ſaints; as the nativity of St John the Baptiſt, &c. But when we ſay *the* Nativity, it is underſtood of that of Jeſus Chriſt, or the feaſt of Chriſtmas.

(3.) Nativity. [*nativitas*], in ancient law-books, ſignifies bondage or ſervitude.

(4.) Nativity, in aſtrology, the theme or figure of the heavens, and particularly of the twelve houſes, at the moment when a perſon was born; called alſo the horoscope. Caſting the queen's nativity, or by calculation ſeeking to know how long the queen ſhould live, &c. was made felony, an. 23 Eliz. c. 2.

NATIVO habendo, in law, a writ directed to the ſheriff, for a lord who claimed inheritance in any villain, when a villain was run away from him, for the apprehending and reſtoring him to the lord.

NATIX, in natural hiſtory, a name given by ſome old writers to the nerita.

NATIZONE, a river in Friuli, anciently called Natiso, which runs into the Liſonzo, four miles north of Palma Nuovo.

NATOLIA, the modern name of the Leſſer Asia, the moſt weſterly part of Turkey in Aſia, and conſiſting of a large peninſula, which extends from the Euphrates as far as the Archipelago, the ſea of Marmora, the ſtraits of Galipoli and of Conſtantinople, which ſeparate it from Europe on the W. It is bounded on the N. by the Black Sea, and on the S. by the Mediterranean. It is 400 miles long from E. to W. and 35 broad, and contains the ancient Bithynia, Paphlagonia, Galatia, Phrygia, Myſia, Æolia, Ionia, Lydia, Doris, Pyſidia, Lycia, and Pamphylia. The ſoil is fertile, and commerce conſiderable. It is governed by a beglerbeg, and ſeveral ſangiacs. There are many Greek Chriſtians, beſides Armenians and Roman catholics in it.

NATOLICA, an iſland in the Mediterranean, on the coaſt of Greece. Lon. 39. 12. E. Ferro, Lat. 38. 39. N.

(1.) NATRIX, in botany, the name given by Rivinis to a genus of plants nearly allied to the anonis, and comprehended with it in one genus by Linnæus, under the name of *Ononis.* See Ononis, and Rest-harrow.

(2.) Natrix, in zoology, the name of the common or water-ſnake, called alſo torquata, from the ring about its neck. It is not a water-animal, properly ſpeaking, but a land one, which being able to ſwim very well, often takes the water to hunt about for frogs, which are its principal food. It grows to be much longer and larger than the viper, and does not bring forth live young ones, but great numbers of eggs, which it lays in dunghills to be hatched by the warmth of the place, or by the heat of the ſun.

NATRON. See Chemistry, *Index.*

NATRUM, the nitre of the ancients, in natural hiſtory, a genuine, pure, and native ſalt, extremely different from our nitre, and indeed from all the other native ſalts, it being a fixed alkali, plainly of the nature of thoſe made by fire from vegetables, yet capable of a regular cryſtallization, which thoſe ſalts are not. It is found on the ſurface of the earth, or at very ſmall depths within it; and is naturally formed into thin and flat cakes or cruſts, which are of a ſpongy or cavernous ſubſtance, very light and friable, and, when pure, of a pale browniſh white; but as its ſpongy texture renders it very ſubject to be fouled by earth received into its pores, it is often met with of a deep dirty brown, and often reddiſh. Natrum, whether native or purified, diſſolves in a very ſmall quantity of water; and this ſolution is, in many parts of Aſia, uſed for waſhing; where it is alſo made into ſoap, by mixing it with oil. Natrum reduced to powder, and mixed with ſand or flints, or with any other ſtone of which cryſtal is the baſis, make them readily run into glaſs. Gold heated red-hot, and ſprinkled with a ſmall quantity of this ſalt, melts in the ſame manner; as does alſo iron, copper, and the regulus of antimony; which melt much more eaſily than they otherwiſe would do. Mercury cannot be mixed with it by any art, and indeed will not amalgamate with metals if only a little of this ſalt be added. It is found in great abundance in many parts of Aſia, where the natives ſweep it up from the ſurface of the ground, and call it *ſoap-earth.* The earlieſt account we have of it is in the Scriptures, where we find that the ſalt called *nitre* in thoſe times would ferment with vinegar, and had an obſterſive quality, ſo that it was uſed in baths and in waſhing things. Solomon compares the ſinging of ſongs with a heavy heart to the contrariety of vinegar and nitre; and Jeremiah ſays, that if the ſinner waſh himſelf with nitre, his ſin is not cleanſed off. Theſe are properties that perfectly agree with this ſalt, but not at all with our ſaltpetre.

NATTAM, two towns of Indoſtan: 1. With a fort in Madura, 45 m. SSW. of Trichinopoly: 2. In the Carnatic, 28 miles WNW. of Trichinopoly.

NATTER JACK, in zoology. See RANA, § 8.

NATTES, DEUX. See DEUX NATTES.

NATUNA ISLES, a cluſter of iſlands, in the Eaſt Indian Sea; 60 miles W. of Borneo.

(1.) * **NATURAL.** *adj.* [*naturalis*, Latin; *naturel*, Fr.] 1. Produced or effected by nature; not artificial.—There is no *natural* motion of any particular heavy body, which is perpetual, yet it is poſſible from them to contrive ſuch an artificial revolution as ſhall conſtantly be the cauſe of itſelf. *Wilkin's Dedalus.* 2. Illegitimate; not legal.—This would turn the vein of that we call *natural* to that of legal propagation; which has ever been encouraged as the other has been diſfavoured by all inſtitutions. *Temple.* 3. Beſtowed by nature; not acquired.—If there be any difference in *natural* parts, it ſhould ſeem that the advantage lies on the ſide of children born from noble and wealthy parents. *Swift.* 4. Not forced; not farfetched; dictated by nature.—I will now deliver a few of the propereſt and *naturalleſt* conſiderations that belong to this piece. *Wotton.* 5. Following the ſtated courſe of things.—If ſolid piety, humility, and a ſober ſenſe of themſelves, is much wanted in that ſex, it is the plain and *natural* conſequence of a vain and corrupt education. *Law.* 6. Conſonant to natural notions.—Such unnatural connections become, by cuſtom, as *natural* to the mind as ſun and light; fire and warmth go together, and ſo ſeem to carry with them as *natural* an evidence as ſelf-evident truths themſelves. *Locke.* 7. Diſcoverable by reaſon, not revealed.—I call that *natural* religion, which men might know, and ſhould be obliged unto, by the mere principles of reaſon. *Wilkins.* 8. Tender; affectionate by nature.—

To leave his wife, to leave his babes,
He wants the *nat'ral* touch. *Shak. Macbeth.*

9. Unaffected; according to truth and reality.—What can be more *natural* than the circumſtances in the behaviour of thoſe women who had loſt their huſbands on this fatal day? *Addiſon.* 10. Oppoſed to violent: as, a *natural* death.

(2.) * **NATURAL.** *n. ſ.* [from *nature.*] 1. An idiot; one whom nature debars from underſtanding; a fool.—

That a monſter ſhould be ſuch a *natural.*
Shak.

—Take the thoughts of one out of that narrow compaſs he has been all his life confined to, you will find him no more capable of reaſoning than a perfect *natural. Locke.* 2. Native; original inhabitant. Not in uſe.—The inhabitants and *naturals* of the place ſhould be in a ſtate of freemen. *Abbot.*—Oppreſſion, in many places, wears the robes of juſtice, which domineering over the *naturals*, may not ſpare ſtrangers. *Raleigh.* 3. Gift of nature; quality. Not in uſe.—The wretcheder are the contemners of all helps; ſuch as, preſuming on their own *naturals*, deride diligence, and mock at terms when they underſtand not things. *Ben Jonſon.* —To conſider them in their pure *naturals*, the earl's intellectual faculties were his ſtronger part, and the duke's, his practical. *Wotton.*

(3.) **NATURAL** (§ 1. *def.* 1.) ſtands oppoſed to *factitious* or artificial. (See ARTIFICIAL.) Biſhop Wilkins obſerves, that there appears a world of difference between natural and artificial things, when viewed with microſcopes. The firſt ever appear adorned with all imaginable elegance and beauty; the latter, though the moſt curious in their kind, infinitely rude and unhewn, the fineſt needle appears a rough bar of iron, and the moſt accurate engraving or emboſſment, as if done with a mattock or a trowel.

(4.) **NATURAL**, in heraldry, is uſed where animals, fruits, flowers, &c. are blazoned with the colours they naturally have, though different from the common colours of heraldry; and this is to prevent their armories being accuſed of falſity, when blazoned with the names of colours unknown in heraldry.

(5.) **NATURAL BEAUTY**, or the beauty of natural objects, implies thoſe qualities in the works of God which are calculated to excite pleaſing ſenſations in the minds of all perſons of true taſte who attentively obſerve them. "That ſenſibility to beauty (ſays Dr Percival, in his *Moral and Literary Diſſert.*), which, when cultivated and improved, we term *taſte*, is univerſally diffuſed through the human ſpecies; and it is moſt uniform with reſpect to thoſe objects, which being out of our power, are not liable to variation from accident, caprice, or faſhion. The verdant lawn, the ſhady grove, the variegated landſcape, the boundleſs ocean, and the ſtarry firmament, are contemplated with pleaſure by every attentive beholder. But the emotions of different ſpectators, though ſimilar in kind, differ widely in degree; and to reliſh with full delight the enchanting ſcenes of nature, the mind muſt be uncorrupted by avarice, ſenſuality or ambition, quick in her ſenſibilities, elevated in her ſentiments, and devout in her affections. Perhaps ſuch ardent enthuſiaſm may not be compatible with the neceſſary toils and active offices which Providence has aſſigned to the generality of men. But there are none to whom ſome portion of it may not prove advantageous; and if it were cheriſhed by each individual, in that degree which is conſiſtent with the indiſpenſable duties of his ſtation, the felicity of human life would be conſiderably augmented. From this ſource, the refined and vivid pleaſures of the imagination are almoſt entirely derived; and the elegant arts owe their choiceſt beauties to a taſte for the contemplation of nature. Painting and ſculpture are expreſs imitations of viſible objects; and where would be the charms of poetry, if diveſted of the imagery and embelliſhments which ſhe borrows from rural ſcenes? Painters, ſtatuaries, and poets, therefore, are always ambitious to acknowledge themſelves the pupils of nature; and as their ſkill increaſes, they grow more and more delighted with every view of the animal and vegetable world. But the pleaſure reſulting from admiration is tranſient; and to cultivate taſte, without regard to its influence on the paſſions and affections, 'is to rear a tree for its bloſſoms, which is capable of yielding the richeſt and moſt valuable fruit.' Phyſical and moral beauty bear ſo intimate a relation to each other, that they may be conſidered as different gradations in the ſcale of excellence; and the knowledge and reliſh of the former ſhould be deemed only a ſtep to the nobler and more permanent enjoyments of the latter. It is the part, then, of the moraliſt, and it has been frequently his buſineſs, to point out and recommend ſuch pleaſures as are highly gratifying, and are yet perfectly innocent. Mr Addiſon, whoſe works will be admired as long as the language in which they are written is underſtood, recommends ſtrongly and elegantly the pleaſures of a garden; and Dr Knox has an eſſay on the ſame ſubject, from which we ſelect a few obſervations: "Not he alone is to be eſteemed a benefactor to mankind, who makes an uſeful diſcovery; but he alſo who can point out and recommend an innocent pleaſure. Of this kind are the pleaſures ariſing from the obſervation of nature; and they are highly agreeable to every taſte uncorrupted by vicious indulgence. Rural ſcenes of almoſt every kind are delightful to the mind of man. But the misfortune is, that the greater part are hurried on in the career of life with too great rapidity to be able to give attention to that which ſolicits no paſſion. The darkeſt habitation in the dirtieſt ſtreet of the metropolis, where money can be earned, has greater charms with many than the groves of Hagley. The patron of refined pleaſure, the elegant Epicurus, fixed the ſeat of his enjoyment in a garden. He was of opinion, that a tranquil ſpot, furniſhed with the united ſweets of art and nature, was the beſt adapted to delicate repoſe. And even the ſeverer philoſophers of antiquity were wont to diſcourſe in the ſhade of a ſpreading tree, in ſome cultivated plantation. A bad heart finds little amuſement but in a communication with the active world, where ſcope is given for the indulgence of malignant paſſions; but an amiable diſpoſition is commonly known by a taſte for the beauties of the animal and the vegetable creation." In ſhort, ſince the world was made for our uſe, ſince the beauties of nature are alike diſplayed before all men, and ſince they are unqueſtionably an inexhauſtible fund of innocent amuſement; that ſcience muſt be of vaſt importance which enables us to reliſh them properly.

(6.) **Natural Bridges.** See **Bridge**, § I. ii.

(7.) **Natural Children**, thoſe born out of lawful wedlock. See **Bastard**.

(8.) **Natural Functions** are thoſe actions whereby the elements are changed and aſſimilated ſo as to become a part of the body. See **Medicine**, *Index*.

NATURAL HISTORY.

Definition *and* Objects *of the* Science.

(1.) NATURAL HISTORY, in its moſt extenſive ſignification, denotes a knowledge and deſcription of the whole univerſe. Matters of fact reſpecting the heavens, meteors, atmoſphere, the earth, reſpecting all the phenomena, indeed, which occur in the world, and even of the external parts and actions of man himſelf, as far as reaſon can diſcover them, belong to the province of natural hiſtory; but when we leave the ſimple recital of effects, and endeavour to inveſtigate the cauſes of ſuch phenomena, we then leave natural hiſtory, and enter on philoſophy.

(2.) The object of this article, therefore, in the ſenſe here given it, is as extenſive as nature itſelf. But, in its more appropriated ſenſe, it only extends to the ſurface of the earth, the works on it, and the inhabitants of it. It treats of thoſe ſubſtances of which, as far as our reſearches have led us, the earth is compoſed, and of thoſe organized bodies, whether vegetable or animal, which adorn its ſurface, which riſe into the air, or live in the waters.

(3.) But, as a ſcience ſo various and comprehenſive could neither with propriety nor advantage be completely diſcuſſed under the general title, in a work wherein many of the above ſubjects are diſcuſſed under other ſciences, we refer the reader to the article **Kingdoms**, § 1; where he will be directed to the different articles which conſtitute either the branches or the objects of the ſcience, and which are all treated under their reſpective names. In the preſent article it is only propoſed to give a general and philoſophical view of the ſubject; to ſet forth in a ſummary way, what occurs in the three kingdoms of nature; with their conſtitution, laws, and economy; or, in other words, that all-wiſe diſpoſition of the Creator in relation to natural things, by which they are fitted to produce general ends and reciprocal uſes.

SECT. I. *Of the* TERRAQUEOUS GLOBE *in* GENERAL, *and* its CHANGES.

(4.) THE terraqueous globe, or the WORLD which we inhabit, is every where ſurrounded with elements, and contains in its ſuperficies the three KINGDOMS OF NATURE, as they are called; the FOSSIL or MINERAL, which conſtitutes the cruſt of the earth; the VEGETABLE, which adorns the face of it, and draws great part of its nouriſhment from the foſſil kingdom; and the ANIMAL, which is ſuſtained by the vegetable kingdom. Thus, then, theſe three grand diviſions or kingdoms; cover, adorn, and vary, the ſurface of the earth.

(5.) As to the STRATA of the EARTH and MOUNTAINS, the upper parts conſiſt of rag-ſtone; the next ſlate; the 3d of marble, filled with petrifactions; the 4th again of ſlate; and laſtly, the loweſt of free-ſtone. The habitable part of the earth, though it is ſcooped into various inequalities, yet it is every where high in compariſon with the water; and the farther it is from the ſea it is generally higher. Thus the waters in the lower places are not at reſt, unleſs ſome obſtacle confines them, and thus forms lakes and marſhes.

(6.) The SEA ſurrounds the continent, and takes up the greateſt part of the earth's ſurface. The ſea ſhores are uſually full of dead teſtaceous animals, wreck, and ſuch like bodies, which are annually thrown out of it. They are alſo covered with ſand of various kinds, ſtones, &c. For while the rapid rivers ruſh through narrow valleys, they wear away the ſides; and thus the friable and ſoft earth falls in, and its particles are carried to diſtant ſhores; whence the continent gains no ſmall increaſe.

(7.) The CLOUDS collected from exhalations, chiefly from the ſea, but likewiſe from other waters, and moiſt grounds, and condenſed in the lower regions of the ATMOSPHERE, ſupply the earth with RAIN; but ſince they are attracted by the mountainous parts of the earth, it follows, that thoſe parts muſt have a larger ſhare of water than the reſt. SPRINGS, which generally ruſh out at the foot of mountains, take their riſe from this rain water, and vapours condenſed, that trickle through the holes and interſtices of looſe bodies, and are received into caverns. (See METEOROLOGY.) Theſe afford pure WATER purged by ſtraining; and rarely dry up in ſummer, or freeze in winter, ſo that animals never want a wholeſome and refreſhing liquor.

(8.) The chief ſources of RIVERS are fountains and rills, growing by gradual ſupplies into larger ſtreams; till at laſt, after a conflux of a vaſt number of them, they fall into the ſea with rapidity, and there depoſit the ſtores, foreign matters, and ſuch earthy ſubſtances as they tore off in their way. Thus the water returns in a circle, and acts over the ſame ſcene in continued ſucceſſion.

(9.) MARSHES, ariſing from water retained in low grounds, are filled with moſſy tumps, which are brought down by the water from the higher parts, or are produced by putrified plants. New meadows often ariſe from marſhes dried up. This happens ſooner when the *ſphagnum* (a kind of moſs) has laid a foundation; for this in proceſs of time changes into a very porous mould, till almoſt the whole marſh is filled with it. After that the ruſh ſtrikes root, and along with the cotton graſſes conſtitutes a turf, raiſed in ſuch a manner that the roots get continually higher, and thus lay a more firm foundation for other plants, till the whole marſh is changed into a fine meadow; if the water happen to work itſelf a new paſſage.

(10.) HILLOCKS, that abound in low grounds, occaſion the earth to increaſe yearly, and ſeem to do hurt; but the barren ſpots thus become ſooner rich meadow and paſture land. Theſe hillocks are formed by ants, by ſtones and roots, and the trampling of cattle; but the principal cauſe is the force of the winter cold, which in ſpring raiſes the roots of plants ſo high above the ground, that being expoſed to the air, they grow and periſh; after which the golden maidenhairs fill the vacant places.

(11.) MOUNTAINS, HILLS, VALLEYS, and all the inequalities of the earth, inſtead of diminiſhing its beauty, give a more pleaſing aſpect, and confer great advantages. For thus the ſurface is larger; different kinds of plants thrive better, and are more eaſily watered; and the rain waters run in continual ſtreams into the ſea; not to mention many other uſes in relation to winds, heat, and cold. Alps are the higheſt mountains, that reach to the ſecond region of the air, where trees cannot grow erect. The higher theſe Alps are, the colder they are *cæteris paribus*. Hence the Alps in Sweden, Siberia, Switzerland, Peru, Braſil, Armenia, Aſia, and Africa, are perpetually covered with ſnow, which becomes almoſt as hard as ice. But if by chance the ſummer heats be greater than ordinary, ſome part of thoſe ſtores melts, and runs in rivers into the lower regions, which are thus much refreſhed.

(12.) It is ſcarcely to be doubted but that the ROCKS and STONES diſperſed over the globe were formed originally in, and from, the earth; but when repeated torrents of rain have ſoftened the ſoluble earth, and carried it down into the lower parts, theſe ſolid and heavy bodies, being laid bare, ſtick out above the ſurface. The TIDES alſo have conſiderable effect on the ſea-ſhore, which being daily and nightly aſſaulted by the waves, at length gives way, and breaks off. Hence we ſee the rubbiſh of the ſhores on moſt coaſts.

(13.) The winter by its froſt prepares the earth and mould, which thence are broken into very minute particles, and thus, being put into a mouldering ſtate, become more fit for the nouriſhment of plants; by its ſnow it covers the ſeeds and roots of plants, and thus by *cold* defends them from the *force of cold;* while the piercing froſt of the winter purifies the atmoſphere and putrid waters, and makes them more wholeſome for animals.

(14.) The perpetual ſucceſſion of heat and cold renders our ſummers more pleaſing: and though the winter deprives us of many plants and animals, yet the perpetual ſummer within the tropics is not much more agreeable, as it often deſtroys men and other animals by its immoderate heat. Thoſe regions abound with exquiſite fruits.

(15.) The winters, though troubleſome to a great part of the globe on account of their vehement and intenſe cold, yet are leſs hurtful to human life than the heat of the torrid zone, as the ſuperior longevity of the natives of cold climates teſtifies. Yet on the whole, men may live very conveniently on almoſt any part of the earth; as every different country has different natural advantages.

(16.) The ſeaſons, like human life, have their viciſſitudes; their beginnings, their progreſs, and their end. The jovial ſpring, is ſucceeded by the luxuriant and the mellow ſummer, autumn paves the way for gloomy winter.

(17. To perpetuate the eſtabliſhed courſe of nature in a continued ſeries, the Divine Wiſdom has thought fit that all living creatures ſhould conſtantly be employed in *producing* individuals; that all natural things ſhould contribute towards *preſerving* every ſpecies; and laſtly, that the *death* and *deſtruction* of one thing ſhould always be ſubſervient to the production of another. Hence the objects of our preſent inquiry fall to be conſidered in a threefold view, that of *propogation*, *preſervation*, and *death* or *deſtruction*.

SECT. II. *Of the* FOSSIL KINGDOM.

(18.) I. PROPAGATION. It is generally agreed, that ſtones are not organical bodies, like plants and animals; and therefore it is clear, that they are not produced from an egg, like the tribes of the other kingdoms. Hence the variety of foſſils is proportionate to the different combinations of coaleſcent particles; and hence the ſpecies in the foſſil kingdom are not ſo diſtinct as in the other two. Hence alſo the laws of generation in relation to foſſils have been in all ages extremely difficult to explain; and hence have ariſen ſo many different opinions about them, that it would be endleſs to enumerate them.

(19.) Some ſuppoſe that clay is the ſediment of the ſea; and obſervation ſo far ſeems to ſupport this opinion, for great plenty of it is generally found along the coaſts. Seamen, who have kept journals, have obſerved, that a very minute ſand covers the bottom of the ocean; and ſeem to think that it is daily cryſtallized from the water. It is now generally acknowledged, that teſtaceous bodies and petrifactions reſembling animals were once real animals or vegetables. It has been ſuppoſed indeed, that ſhells, being of a calcareous nature, changed the adjacent clay, ſand, or mould, into the ſame kind of ſubſtance. Hence it appears certain, that marbles may be generated from petrifactions; and therefore it is often full of them. Rag-ſtone, the common matter of our rocks, appears to be formed from a ſandy kind of clay; moſt frequently, however, this appears to happen where the earth is impregnated with iron. Free-ſtone ſeems to be the product of ſand: and the deeper the bed where it is found, the more compact it becomes; and the more denſe the ſand, the more eaſily it concretes. But if an alkaline clay be mixed with the ſand, the freeſtone is generated more readily. The flint is almoſt the only kind of ſtone, certainly the moſt common, in chalky mountains.—It would appear therefore form this to be produced from chalk.

(20.) STALACTITES, or drop-ſtone, is compoſed of calcareous particles, adhering to a dry, and generally a vegetable body, and is depoſited by dropping water; from which circumſtance it ſeems to have derived its vulgar name Incruſtations (*Syſt. Nat.* 32. 5. 6. 7. 8.) are commonly generated where a vitriolic water connects clayey and earthy particles together. Slate, by the vegetables that are often incloſed in it, ſeems to take its origin from a marſhy mould.

(21.) METALS vary according to the nature of the matrix, in which they adhere; *e. g.* the pyrites cupri Fahlumenus contains frequently ſulphur, arſenic, iron, copper, a little gold, vitriol, alum, ſometimes lead-ore, ſilver, and zinc. The gold, copper, iron, zinc, arſenic, pyrites, vitriol, come out of the ſame vein. The number therefore of ſpecies and varieties of foſſils, each ſerving different purpoſes, according to their different natures, will be in proportion as the different kinds of earths and ſtones are variouſly combined. See MINERALOGY, *Part* II.

(22.) II. PRESERVATION. As foſſils are deſtitute of life and organization; are hard, and not obnoxious to putrefaction; ſo they laſt longer than any other kind of bodies. Air is ſuppoſed to contribute to this duration; as it hardens many ſtones upon the ſurface of the earth, and makes them more ſolid, compact, and durable. The chalky marl, which they uſe in Flanders and about Bath for building houſes, as long as it continues in the quarry is friable: but when dug up and expoſed to the air it grows gradually harder.

(23.) Though we know not the cauſe why large rocks are ſplit, and vaſt fragments frequently torn off; yet we obſerve, that fiſſures are cloſed up by water, which gets between them, and is detained there; forming cryſtal and ſpar. Hence we ſcarcely ever find any cryſtal but in thoſe ſtones which have retained for ſome time in their chinks water loaded with ſtony particles. In the ſame manner water fills the cavities in mines, and concretes into quartz or cryſtal.

(24.) It is manifeſt that ſtones are not only generated, augmented, and changed perpetually, from incruſtations brought upon moſs, but are alſo increaſed by cryſtal and ſpar. The adjacent earth, too, eſpecially if it be impregnated with iron particles, is commonly changed into a ſolid ſtone. It is ſaid, that the marble quarries in Italy, from whence fragments are cut, grow up again. Ores grow by degrees, whenever the mineral particles, conveyed by water through the clefts of mountains, are retained there: ſo that, adhering to the homogeneous matter a long while, at laſt they take its nature, and are changed into a ſimilar ſubſtance.

(25.) III. DESTRUCTION. FOSSILS, although the hardeſt of bodies, yet are ſubject to deſtruction; as well as all other created ſubſtances. They are diſſolved in various ways, by water, air, and the ſolar rays; by the rapidity of rivers, violence of cataracts, and eddies, which continually beat upon, and at laſt reduce to powder the hardeſt rocks. The agitations of the ſea, and lakes, and the vehemence of the waves, excited by turbulent winds, pulveriſe ſtones, as evidently appears by their roundneſs along the ſhore.

(26.) **Sand** is formed of free-ſtone, which is deſtroyed partly by froſt, making it friable; partly by the agitation of water and waves, which wear away, diſſolve, and reduce into minute particles what froſt had made friable.

(27.) **Chalk** is in general ſuppoſed to be formed of rough marble, which the air, the ſun, and the winds have diſſolved. The ſlate earth, or humus ſchiſti, (*Syſt. Nat.* 512.) owes its origin to ſlate, ſhowers, air, and ſnow melted.

(28.) **Ochre** is formed of metals diſſolved, and preſents the very ſame colours which we always find the ore tinged with when expoſed to the air. Vitriol in the ſame manner mixes with water from ore deſtroyed.

(29.) The muria ſaxatilis (*Syſt. Nat.* 14. 6), a kind of talky ſtone, yielding ſalt in the parts that are turned to the ſun, is diſſolved into ſand, which falls by little and little upon the earth till the whole is conſumed; not to mention other kinds of foſſils. Laſtly, from theſe ariſe new foſſils, ſo that the deſtruction of one thing ſerves conſtantly for the generation of another.

(30.) Teſtaceous worms too eat away the hardeſt rocks. That ſpecies of ſhell fiſh called the *razor-ſhell* bores through ſtones in Italy, and hides itſelf within them; ſo that the people who eat them are obliged to break the ſtones before they can come at them. The COCHLEA, (*Faun. Suec.* 1299.) a kind of ſnail that lives on craggy rocks, eats and bores through the chalky hills, as worms do through wood. This is evident by the obſervations of the celebrated DE GEER. There are often found dead inſects in the hearts of the hardeſt rocks, without any viſible trace of the manner of their getting there; whence many ſuppoſe that ſtones were originally fluid.

Sect. III. *Of the* Vegetable Kingdom.

(31.) I. **Propagation.** ANATOMY proves, that all plants are organic and living bodies; and that all organic bodies are propagated from an egg, has been demonſtrated. The ſeeds of vegetables as well as of animals, are called *eggs*; theſe are different in every different plant. Many plants however, puſh forth from their roots freſh offſets for two or more years. Many may even be propagated by branches, buds, ſuckers, and leaves, fixed in the ground, and even not a few trees. Hence their ſtems being divided into branches, may be looked on as roots above ground; for in the ſame way the roots creep under ground; and divide into branches. As a proof of this, a tree will grow in an inverted ſituation, the roots being placed upwards, and the head downwards, and buried in the ground; for then the branches will become roots, and the roots will produce leaves and flowers. The lime tree may afford an example, on which gardeners have chiefly made experiments. Yet this by no means overturns the doctrine, that all vegetables are propagated by ſeeds; for in each of theſe inſtances nothing vegetates but what was the part of a plant, formerly produced from ſeed; ſo that, in fact, without ſeed no new plant is produced.

(32.) Plants produce ſeeds; but they are entirely unfit for propagation, unleſs fecundation precedes, which is performed by an intercourſe between different ſexes. Plants therefore are provided with organs of generation, analogous to animals. (See BOTANY, *Index*.) Theſe are contained in the flowers. In moſt flowers the ſtamina ſurround the piſtils, and are of about the ſame height: but there are many plants in which the piſtil is longer than the ſtamina; and in theſe the flowers recline, that the duſt may the more eaſily fall into the ſtigma, *e. g.* in the campanula, cowſlips, &c.

(33.) But when the fecundation is completed, the flowers riſe again, that the ripe ſeeds may not fall out before they are diſperſed by the winds. In other flowers, where the piſtil is ſhorter, the flowers preſerve an erect ſituation; when the flowering comes on they become erect, though before they were drooping, or immerſed under water. When the male flowers are placed below the female ones, the leaves are exceedingly ſmall and narrow, that they may not hinder the duſt from flying upwards like ſmoke; as we ſee in the pine, fir, yew, ſea-grape, juniper, cypreſs, &c. But when in one and the ſame ſpecies one plant is male and the other female, and conſequently may be far from one another, the male duſt is carried in abundance by the wind from the male to the female: as in the whole claſs of DIOECIA. A more difficult impregnation is compenſated by the longevity of the individuals, and the continuation of life by buds, ſuckers, and roots. Moſt flowers expand themſelves when the ſun ſhines forth; whereas when clouds, rain, or evening come on, they cloſe up, leſt the genital duſt ſhould be coagulated or rendered uſeleſs. But when the fecundation is over, the flowers never cloſe themſelves up. The organs of generation, which in the animal kingdom are generally removed from ſight, in the vegetable are expoſed to full view; and afford delight to the ſpectator by their beautiful colours and delicious odours. At this time bees, flies, and other inſects, ſuck honey out of their nectaries, and from their effête duſt the bees gather wax. All the experiments that have hitherto been made confirm this hypotheſis; though it has been controverted by the late Mr SMELLIE in his *Philoſophy of Natural Hiſtory*.

(34.) As to the diſſemination of ſeeds after they come to maturity, the Author of nature has wiſely provided for this in numberleſs ways. The ſtalks and ſtems raiſe the fruit above the ground, that the winds, ſhaking them, may diſperſe far off the ripe ſeeds. Moſt of the pericarpia are ſhut at top, that the ſeeds may not fall before they are ſhaken out by ſtormy winds. Wings are given to many ſeeds, by the help of which they fly far from the mother plant, and often overſpread a whole country. Theſe wings conſiſt either of a down, as in moſt of the compoſite flowered plants; or of a membrane, as in the birch, alder, aſh, &c. Hence woods, which happen to be conſumed by fire or any other accident, are ſoon reſtored by new plants diſſeminated by theſe means. Many kinds of fruit are endued with a remarkable elaſticity, by the force of which the ripe pericarpia throw the ſeeds to a great diſtance; as the wood-ſorrel, the ſpurge, the phyllanthus, the dittany, &c. Other ſeeds or pericarpia are rough, or provided with hooks; ſo that they are apt to ſtick to animals that paſs by them, and are thus carried to their holes, where they are both ſown and manured, and therefore the plants of theſe ſeeds grow where others will not; as hounds-tongue, agrimony, &c.

(35.) Berries and other pericarpia are allotted for aliment to animals; but while they eat the pulp they ſow the ſeeds; for they either diſperſe them at the ſame time; or, if they ſwallow them, they always come out unhurt. Thus if a field be manured with recent mud or dung not quite rotten, various other plants often come up along with the grain that is ſowed. The miſletoe always grows upon other trees, becauſe the thruſh that eats the ſeeds of it, caſts them forth with its dung. The greateſt part of the junipers alſo, that fill our woods, are ſown by thruſhes, and other birds, in the ſame manner; as the berries, being heavy, cannot be diſperſed far by the winds. The croſsbill that lives on the fir-cones, and the bawfinch that feeds on the pine-cones, at the ſame time ſow many of their ſeeds; eſpecially when they carry the cone to a ſtone, or trunk of a tree, that they may more eaſily ſtrip it of its ſcales. Swine likewiſe, by turning up the earth, and moles by throwing up hillocks, prepare the ground for ſeeds as the ploughman does.

(36.) By means of the ſea, lakes, and rivers, too, ſeeds are often conveyed unhurt to diſtant countries. Various other ways in which nature provides for the diſſemination of plants, are pointed out by Linnæus in an *Oration concerning the augmentation of the habitable earth*. In that Eſſay, he ſhows, that there was only one pair of all living things created at the beginning. He lays down as a principle, That at the beginning all the earth was covered with the ſea, unleſs one iſland, large enough to contain all animals and vegetables. This principle he endeavours to eſtabliſh by ſeveral phenomena, which makes it probable that the earth has been and is ſtill gaining upon the ſea; and does not forget to mention foſſil ſhells and plants every where found, which he ſays cannot be accounted for by the deluge. He then undertakes to ſhow how all vegetables and animals might in this iſland have a ſoil and climate proper for each, only by ſuppoſing it to be placed under the equator, and crowned with a very high mountain. For it is well known that the ſame plants are found on the Swiſs, the Pyrenean, the Scots Alps, on Olympus, Lebanon, Ida, as on the Lapland and Greenland Alps. And Tournefort found at the bottom of Mount Ararat the common plants of Armenia; a little way up, thoſe of Italy; higher, thoſe which grow about Paris; afterwards, the Swediſh plants; and laſtly, on the top, the Lapland Alpine plants; and I myſelf, adds the author, from the plants growing on the Dalecarlian Alps could collect how much lower they were than the Alps of Lapland. He then proceeds to ſhow how from one plant of each ſpecies the immenſe number of individuals now exiſting might ariſe. He gives ſome inſtances of the ſurpriſing fertility of certain plants; *v. g.* the elecampane, one plant of which produced 3000 ſeeds; of ſpelt, 2000; of the ſun-flower, 4000; of the poppy, 3200; of tobacco, 40,320. But ſuppoſing any annual plant producing annually only two ſeeds, even of this, after 20 years, there would be 1,048,576 individuals. For they would increaſe yearly in a duple proportion, viz. 2, 4, 8, 16, &c.

(37.) II. Preservation. The great Creator of all things decreed, that the whole earth ſhould be covered with plants, and that no place ſhould be void, none barren. But ſince all countries have not the ſame changes of ſeaſons, and every ſoil is not equally fit for every plant; he therefore, that no place ſhould be without ſome, gave to every one of them ſuch a nature, as might be chiefly adapted to the climate; ſo that ſome of them can bear an intenſe cold, others an equal degree of heat; ſome delight in dry ground, others in moiſt, &c.

(38.) The Alpine plants live only in high and cold ſituations; and therefore often on the Alps of Armenia, Switzerland, the Pyreneans, &c. whoſe tops are equally covered with eternal ſnow as thoſe of the Lapland Alps, plants of the ſame kind are found, and it would be in vain to ſeek for them anywhere elſe. The Alpine plants blow, and ripen their ſeeds very early, leſt the winter ſhould ſteal upon them on a ſudden, and deſtroy them. Our northern plants, although they are extremely rare everywhere elſe, yet are found in Siberia, and about Hudſon's Bay; as the arbutus, bramble, winter-green, &c.

(39.) Plants impatient of cold live within the torrid zones; hence both the Indies, notwithſtanding their diſtance, have plants in common. The Cape of Good Hope produces plants peculiar to itſelf; as all the meſembryanthema, and almoſt all the ſpecies of aloes. Graſſes, the moſt common of all plants, can bear almoſt any temperature, for they above all plants are neceſſary for the nouriſhment of cattle; and the ſame thing is obſerved of our moſt common grains.

(40.) Thus neither the ſcorching ſun, nor the pinching cold, hinders any country from having its vegetables. Nor is there any ſoil which does not bring forth many kinds of plants. The pond-weeds, the water lily, lobelia, inhabit the waters. The fluviales, fuci, conferv&aelig;, cover the bottom of rivers, and ſea. The ſphagna fill the marſhes. The brya clothe the plains. The drieſt woods and places ſcarce ever illuminated by the rays of the ſun, are adorned with the hypna. Nay, ſtones and the trunks of trees are not excepted, for theſe are covered with various kinds of liver-wort. The deſart and moſt ſandy places have their peculiar trees and plants; and as rivers or brooks are ſeldom found there, we cannot without wonder obſerve that many of them diſtil water, and by that means afford the greateſt comfort both to man and beaſts that travel there. Thus the tillandſia, which is a paraſitical plant, and grows on the tops of trees in the deſarts of America, has its leaves turned at the baſe into the ſhape of a pitcher, with the extremity expanded; in theſe the rain is collected, and preſerved for thirſty men, birds, and beaſts.

(41.) The water-tree in Ceylon produces cylindrical bladders, covered with a lid; into them is ſecreted a moſt pure and refreſhing water, having the taſte of nectar. There is a kind of cuckow-pint in New France, that if you will break a branch of it, it will afford a pint of excellent water.

How wiſe, how beautiful, is the agreement between the plants of every country and its inhabitants?

(42.) Plants, often by their very ſtructure, contribute remarkably both to their own preſervation and that of others. But the wiſdom of the Creator appears no where more than in the manner of the growth of trees. For as their roots deſcend deeper than thoſe of other plants, proviſion is made, that they ſhall not rob them too much of nouriſhment; and a ſtem, not above a ſpan in diameter, often ſhoots up its branches very high; theſe bear many thouſand buds, each of which is a plant, with its leaves, flowers, and ſtipulæ. Now if all theſe grew upon the plain, they would take up a thouſand times as much ſpace as the tree does; and in this caſe there would ſcarcely be room in all the earth for ſo many plants as at preſent the trees alone afford. Beſides, plants that ſhoot up in this way are more eaſily preſerved from cattle; and their leaves falling in autumn cover the plants growing againſt the rigour of the winter; and in ſummer they afford a pleaſing ſhade, not only to animals, but to plants, againſt the intenſe heat of the ſun. Trees imbibe water from the earth; which water does not circulate again to the root, but being diſperſed, like ſmall rain, by the tranſpiration of the leaves, moiſtens the plants that grow around. Many trees bear fleſhy fruits of the berry or apple kind, which, being ſecure from the attack of cattle, grow ripe for the uſe of man and other animals, while their ſeeds are diſperſed after digeſtion. Laſtly, the particular ſtructure of trees contributes much to the propagation of inſects; for theſe chiefly lay their eggs upon the leaves, where they are ſecure from the reach of cattle.

(43.) Ever-green trees and ſhrubs in the northern parts are chiefly found in the moſt barren woods, that they may ſhelter animals in winter. They loſe their leaves only every 3d year, as their ſeeds are ſufficiently guarded by the moſſes, and do not want any other covering. The palms in the hot countries perpetually keep their leaves. Many plants and ſhrubs are armed with thorns, *e. g.* the buckthorn, ſloe, carduus, cotton-thiſtle, &c. that they may keep off the animals which otherwiſe would deſtroy their fruit. Theſe alſo cover many other plants by their branches. It has been obſerved upon commons where furze grows, that wherever there was a buſh left untouched for years by the commoners, ſome tree has ſprung up, being ſecured by the prickles of that ſhrub from the bite of cattle. So that while adjacent grounds are robbed of all plants by the voracity of animals, ſome may be preſerved to ripen flowers and fruit, and ſtock the parts about with ſeeds, which otherwiſe would be extirpated. All herbs cover the ground with their leaves, and by their ſhade hinder it from being totally deprived of that moiſture which is neceſſary to their nouriſhment. They are alſo an ornament to the earth, eſpecially as leaves have a more agreeable verdure on the upper than the under ſide.

(44.) The MOSSES, which adorn the moſt barren places, preſerve the leſſer plants, when they begin to ſhoot, from cold and drought. They alſo hinder the fermenting earth from forcing the roots of plants upwards in ſpring; as we ſee happen annually to trunks of trees, and other things put into the ground. Hence very few moſſes grow in the warmer climates, as not being ſo neceſſary to that end in thoſe places.

(45.) The Engliſh ſea mat-weed, or marran, will bear no ſoil but pure ſand. Sand, the produce of the ſea, is blown by winds often to very remote parts, and over-ſpreads woods and fields. But where this graſs grows, it frequently fixes the ſand, gathers it into hillocks, and thrives ſo much, that by means of this alone at laſt an entire hill of ſand is raiſed. Thus the ſand is kept in bounds, other plants are preſerved free from it, the ground is increaſed, and the ſea is repelled. This plant is called in Scotland *bent*, and is particularly uſeful for the purpoſe above mentioned, and only grows among ſand near the coaſt.

(46.) The preſervation of GRASSES is abundantly evident from hence, that the more the leaves of the perennial graſſes are eat, the more they creep by the roots, and ſend forth offsets. For the Author of nature intended that vegetables of this kind, which have very ſlender and erect leaves, ſhould be copious, and very thick ſet, covering the ground like a carpet; and thus afford food ſufficient for ſo vaſt a quantity of grazing animals. But although the graſſes are the principal food of ſuch animals, yet they do not touch the flower and ſeed-bearing ſtems, that the ſeeds may ripen and be ſown.

(47.) The caterpillar or grub of the moth, although it feeds upon graſſes, to the great deſtruction of them in meadows, yet it ſeems to be formed in order to keep a due proportion between theſe and other plants; for graſſes, when left to grow freely, increaſe to that degree, that they exclude all other plants; which would conſequently be extirpated, unleſs this inſect ſometimes prepared a place for them. Hence always more ſpecies of plants appear in thoſe places where this caterpillar has laid waſte the paſtures the preceding year, than at any other time.

(48.) III. DESTRUCTION. All plants, as well as animals, muſt ſubmit to death. They ſpring up, grow, flouriſh, ripen their fruit, wither, and at laſt die, and return to the duſt. Thus all black mould, which every where covers the earth, is moſtly owing to dead vegetables. For all roots deſcend into the ſand by their branches, and after a plant has loſt its ſtem the root remains; but this too rots at laſt, and changes into mould. Thus this kind of earth is mixed with ſand, nearly in the ſame way as dung thrown upon fields is wrought into the earth by the induſtry of the huſbandman. The earth thus prepared returns again to plants what it has received from them. For when ſeeds are committed to the earth, they draw to themſelves the more ſubtile parts of this mould, by the co-operation of the ſun, air, and rains; ſo that the talleſt tree is nothing but mould compounded with air and water, and modified by a virtue communicated to a ſmall ſeed by the Creator. From theſe plants, when they die, the ſame kind of mould is formed as gave birth to them originally; whence fertility remains uninterrupted.

(49.) The cruſtaceous liverworts are the foundation of vegetation; and therefore are plants of the utmoſt conſequence in the economy of nature, though deſpiſed by us. When rocks firſt emerge out of the ſea, they are ſo poliſhed by the force of the waves, that ſcarce any herb can find a fixed habitation upon them; as we may obſerve every where near the ſea. But the very minute cruſtaceous liverworts begin ſoon to cover theſe dry rocks, although they have no other nouriſhment but that ſmall quantity of mould and imperceptible particles which the rain and air bring thither. Theſe liverworts dying, turn into a very fine earth; on this earth the imbricated liverworts find a bed to ſtrike their roots in. Theſe alſo die after a time and turn to mould; and then the various kinds of moſſes, *e. g.* the hypna, the brya, polytricha, find a proper place and nouriſhment. Laſtly, theſe dying in their turn, and rotting, afford ſuch plenty of new-formed mould, that herbs and ſhrubs eaſily root and live upon it.

(50.) That trees, when they are dry or are cut down, may not remain uſeleſs to the world, nature haſtens on their deſtruction in a ſingular way; firſt, the liverworts begin to ſtrike root in them; afterwards the moiſture is drawn out of them; whence putrefaction follows. Then the muſhroom-kinds find a fit place for nouriſhment on them, and corrupt them ſtill more. The beetle, called *dermeſtes*, next makes a way between the bark and the wood. The muſk-beetle, the copper talc-beetle, and the caterpillar or coſſus 812 (*Syſt. Nat.*) bores a vaſt number of holes through the trunk. Laſtly, the woodpeckers come, and, ſeeking for inſects, wear away the tree already corrupted; till the whole paſſes into earth. Trees immerſed in water are deſtroyed by the worm that eats into ſhips.

(51.) Thiſtles, as uſeful plants, are armed and guarded by nature. Suppoſe a heap of clay, on which for many years no plant has ſprung up; let the ſeeds of the thiſtle blow there, and grow, the thiſtles by their leaves attract the moiſture out of the air, ſend it into the clay by means of their roots, will thrive themſelves, and afford a ſhade. Let now other ſeeds blow hither, and they will ſoon cover the ground. All ſucculent plants make ground fine, of a good quality, and in great plenty; ſedum, craſſula, aloe, algæ. But dry plants make it more barren, as heath, pines, moſs; and therefore the ſucculent plants grow on rocks and the drieſt hills.

Sect. IV. *Of the* Animal Kingdom.

(52.) I. PROPAGATION. The generation of animals holds the firſt place among the works of the Creator; and chiefly that appointment by which he has regulated the conception of the fœtus, and its excluſion, that it ſhould be adapted to the way of living of each animal. No ſpecies of animals are exempt from the paſſion of love, that the Creator's mandate may be fulfilled, *Increaſe and multiply;* and that thus the egg, in which is contained the rudiment of the fœtus, may be fecundated.

(53.) Foxes and wolves, under this impulſe, every where howl in the woods; crowds of dogs follow the female. Stags have annually new horns, which they loſe after rutting time. Birds look more beautiful than ordinary, and warble all day long through fondneſs. Peacocks ſpread forth their gay and glorious trains. Fiſhes exult in the water; and graſhoppers chirp among the herbs.

(54.) The fecundated egg requires a certain proportionate degree of heat for the expanſion of the embryo; and therefore we find in different claſſes of animals a different way of excluding the fœtus. The females of quadrupeds have an uterus, for eaſy geſtation, cheriſhing warmth, and proper nouriſhment of the fœtus. Birds, to get ſubſiſtence, are under a neceſſity of ſhifting place, by their wings. Geſtation therefore would be burthenſome to them. For this reaſon they lay eggs, covered with a hard ſhell. Theſe they ſit upon and cheriſh till the young come forth. The oſtrich and caſſowary are almoſt the only birds that do not obſerve this law; theſe commit their eggs to the ſand, where the intenſe heat of the ſun cheriſhes and excludes the fœtus.

(55.) FISHES inhabit cold waters, and moſt of them have cold blood; whence they have not heat ſufficient to produce the fœtus. The all-wiſe Creator therefore has ordained, that moſt of them ſhould lay their eggs near the ſhore; where, by the ſolar rays, the water is warmer, and becauſe water inſects abound there, which afford the young fry nouriſhment. Salmon, when about to lay their eggs, go up the ſtream, where the water is freſh and more pure. The fiſh of the ocean, which cannot reach the ſhores by reaſon of the diſtance, are exempt from this law. The Author of nature has given to this kind eggs that ſwim; ſo that they are hatched amidſt the ſwimming fucus, called *ſargazo*. (*Flor. Zeyl.* 389.) The cetaceous fiſh have warm blood; and therefore they bring forth their young alive, and ſuckle them with their teats. The butterfly fiſh alſo brings forth its fœtus alive.

(56.) Many AMPHIBIOUS animals bring forth live fœtuſes, as the viper and the toad, &c. But all the ſpecies that lay eggs lay them in places where the heat of the ſun ſupplies the warmth of the parent. Thus the reſt of the frog and lizard kind lay their eggs in warm waters; the common ſnake in dunghills, and ſuch like warm places. The crocodile and ſea tortoiſes lay their eggs under the ſand, where the heat of the ſun hatches them.

(57.) Moſt INSECTS neither bear young nor hatch eggs: yet their tribes are the moſt numerous of all living creatures. If the bulk of their bodies were proportionate to their numbers, they would ſcarce leave room for any other kinds of animals. The females meet and copulate with the males; and afterwards lay their eggs in ſuch places as may ſupply their offspring with nouriſhment; for the mother dies ſoon after ſhe has laid her eggs. Butterflies, moths, ſome beetles, weevils, bugs, cuckow-ſpit inſects, gall inſects, tree bugs, &c. lay their eggs on the leaves of plants, and every different tribe chooſes its own ſpecies. There is ſcarce any plant which does not afford nouriſhment to ſome inſect; and there is ſcarce any part of a plant which is not preferred by ſome of them. Thus one inſect feeds upon the flower, another upon the trunk, root, or leaves. T

aves of ſome trees and plants, after eggs have
en let into them, grow into galls; and form
wellings for the young ones. Thus when the
ll-inſect has fixed her eggs in the leaves of an
k, the wound of the leaf ſwells, and a knob
te an apple ariſes, which includes and nouriſhes
e embryo.

(58.) When the tree-bug has depoſited its eggs
the boughs of the fir tree, excreſcences ariſe
aped like pearls. When another ſpecies of the
ee-bug has depoſited its eggs in the mouſe-ear,
ickweed or ſpeedwell, the leaves contract into
e ſhape of a head. The water ſpider excludes
gs either on the extremities of the juniper, or
the leaves of the poplar, whence a red globe
produced. The tree louſe lays its eggs on the
ves of the black poplar, which turn into a kind
inflated bag; and ſo in other inſtances. Nor
it upon plants only that inſects lay their eggs.
he gnats commit theirs to ſtagnating waters.
he MONOCULUS often increaſes ſo immenſely on
ols, that the red legions of them have the ap-
arance of blood. Others lay their eggs in other
aces: *e. g.* the beetle, in dunghills; the der-
eſtes, in ſkins, the fleſh fly, in putrified fleſh;
e cheeſe-maggot, in the cracks of cheeſe; whence
e caterpillars iſſuing forth, oftentimes conſume
e whole cheeſe, and deceive many people, who
cy the worms are produced from the particles
the cheeſe itſelf, by equivocal generation, which
extremely abſurd. Others exclude their eggs
on certain animals. The mill-beetle lays its
gs between the ſcales of fiſhes; the ſpecies of
d-fly, on the back of cattle; the ſpecies 1025
yſt. Nat.) on the back of the rein-deer; the ſpe-
s 1026, in the noſes of ſheep. The ſpecies 1028
dges during the winter in the inteſtinal tube or
e throat of horſes, nor can it be driven out till
mmer comes on. Nay, inſects themſelves are
en ſurrounded with the eggs of other inſects,
omuch that there is ſcarcely an animal to be
und which does not afford food for other ani-
ls. Almoſt all the eggs of inſects undergo va-
ous metamorphoſes; *e. g.* the egg of the butter-
, being laid in the cabbage, firſt of all becomes
caterpillar, that feeds on the herb, crawls, and
s 16 feet. This afterwards changes into a
mph, that has no feet, is ſmooth, and eats no-
ing; and laſtly, this burſts into a butterfly that
es, has a variety of colours, is hairy and lives
on honey. "As ſurpriſing as theſe transforma-
ons may ſeem, yet much the ſame happens
en a chicken is hatched; the only difference is,
at this chicken breaks all three coats at once,
e butterfly one after another." *Lin. Amæn.*

(59.) The laws of generation of worms are ſtill
y obſcure; as we find they are ſometimes pro-
ced by eggs, ſometimes by offſets, as happens
trees. It has been obſerved that the polypus
hydra (*Syſt. Nat.* 221.) lets down ſhoots and
e branches, by which it is multiplied. (See PO-
PUS.) If it be cut into many parts, each ſeg-
ent, put into the water, grows into a perfect
imal; ſo that the parts which were torn off are
ſtored, and form a complete and perfect animal
e that from which it was torn.

(60.) The multiplication of animals is not tied
wn to the ſame rules in all; for ſome have a remarkable power of propagating, others are confined within narrow limits. Yet in general we find that the leaſt animals, and thoſe which are uſeful and ſerve for nouriſhment to the greateſt number of other animals, are endued with a greater power of propagating than others. Mites, and many other inſects, will multiply to a thouſand within the compaſs of a very few days; while the elephant ſcarcely produces one young in two years.

(61.) The hawk-kind generally lay not above two eggs, at moſt four; (ſee FALCO;) while the poultry produce from 50 to 100. The diver, or loon, which is eaten by few animals, lays alſo two eggs; but ducks, moor fowls, partridges, &c. and ſmall birds, lay a very large number. If two pigeons hatch nine times a-year, they may produce in four years 14,760 young. They are enduced with this remarkable fertility, that they may ſerve for food, not only for man, but for birds of prey.

(62.) II. PRESERVATION appears chiefly in the tender age, while the young are unable to provide for their own ſupport. For then their parents, though otherwiſe ever ſo fierce in their diſpoſition, are moved with a wonderful affection towards their progeny, and ſpare no pains to provide for, guard, and preſerve them.

(63.) QUADRUPEDS give ſuck to their tender young, and ſupport them by a liquor perfectly eaſy of digeſtion, till they be able to digeſt what is more ſolid. Their love toward them is ſo great, that they endeavour to repel with the utmoſt force every thing which threatens danger to them. The ewe, which brings forth two lambs at a time, will not admit one to her teats unleſs the other be preſent and ſuck alſo.

(64.) BIRDS build their neſts in the moſt artificial manner, and line them as ſoft as poſſible, leſt the eggs ſhould get any damage. And they build only where they may quietly lie concealed, and be ſafe from the attacks of their enemies. The hanging bird makes its neſt of the fibres of withered plants, and the down of the poplar ſeeds, and fixes it upon the bough of ſome tree hanging over the water, that it may be out of reach. The diver places its ſwimming neſt upon the water itſelf, amongſt the ruſhes. Birds ſit on their eggs with ſo much patience, that many of them will periſh with hunger, rather than expoſe the eggs to danger by going to ſeek for food. The male rooks and crows, at the time of incubation, bring food to the females. Pigeons, and all other birds which pair, ſit by turns; but where polygamy prevails, the males ſcarcely take any care of the young.

(65.) Moſt of the duck kind pluck off their feathers in great quantity, and cover their eggs with them, leſt they ſhould be damaged by the cold when they quit their neſts for food; and when the young are hatched, they are ſolicitous in providing for them till they are able to fly and ſhift for themſelves. Young pigeons would not be able to make uſe of hard ſeeds for nouriſhment, unleſs the parents were to prepare them in their crops, and feed them. The eagle owl makes its neſt on the higeſt precipices of mountains, and in the warmeſt ſpots facing the ſun; that the dead bodies brought there may by the heat melt into a ſoft pulp, and become fit nouriſhment for the young.

(66.) As an exception indeed to this foſtering care of birds, may be mentioned the cuckow, which lays its eggs in the neſts of other ſmall birds, generally the wag-tail, or yellow-hammer, and leaves the incubation or preſervation of the young to them. This cuſtom of the cuckow is ſo extraordinary, that it would not be credible, were it not atteſted by the moſt intelligent natural hiſtorians, ſuch as Ray, Willoughby, Geſner, Aldrovandus, Ariſtotle, &c. But this ſeeming want of inſtinct is accounted for from the ſtructure and ſituation of its ſtomach, which diſqualifies it for incubation; and its inſtinctive care is ſtill conſpicuous in providing a proper, though a foreign, nidus for its eggs. See Cuckow.

(67.) Amphibious animals, fiſhes, and inſects, which cannot come under the care of their parents, yet owe this to them, that they are put in places where they eaſily find nouriſhment.

(68.) As ſoon as animals come to maturity, and no longer need the care of their parents, they attend with the utmoſt induſtry, according to their reſpective œconomy, to the preſervation of their lives. Some live on particular ſpecies of plants, which certain regions and ſoils only produce: ſome on animalcula; others on carcaſes; and ſome even on mud and dung. Some ſwim in waters, others fly: ſome inhabit the torrid, frigid, or temperate zones; others frequent deſarts, mountains, woods, pools, or meadows, according as food is found proper to their nature. Thus there is no terreſtrial tract, ſea, river, or country, but contains and nouriſhes various kinds of animals; and thus the world at all times affords nouriſhment to ſo many inhabitants, while nothing it produces is uſeleſs or ſuperfluous.

(69.) Every animal too is furniſhed with ſuch cloathing as is proper to the country where they live, and the ſtructure of their bodies is adapted to their particular way of life. Monkeys, elephants, and rhinoceroſes, feed upon vegetables that grow in hot countries where they have their allotted places. When the ſun darts forth its moſt fervid rays, it does them no hurt; nay, with the reſt of the inhabitants of thoſe climates, they go naked; whereas, were they covered with hair they would periſh with heat. On the contrary, the rein-deer live in the coldeſt parts of Lapland; their chief food is the liverwort, which grows nowhere elſe ſo abundantly; they are clothed with the denſeſt hair, by which they defy the keenneſs of the winter. The rough-legged partridge alſo lives in the Lapland Alps, feeding upon the ſeeds of the dwarf birch; and, that they may run ſafely amidſt the ſnow, their feet are feathered.

(70.) The camel frequents the ſandy and burning deſarts, where often no water is found for many days journey. All other animals would periſh with thirſt in ſuch a deſart, but the camel can undergo it without ſuffering; for his belly is full of cells, where he reſerves water for many days.

(71.) The pelican likewiſe lives in deſart and dry places; builds her neſt far from the ſea, to procure a greater ſhare of heat to her eggs. She therefore brings water from afar for herſelf and her young; and ſhe is furniſhed with an inſtrument well adapted to this purpoſe: ſhe has a very large bag under her throat, which ſhe fills with a quantity of water ſufficient for many days; and this ſhe pours into the neſt, to refreſh her young, and teach them to ſwim. The wild beaſts, lions, and tigers, come to this neſt to quench their thirſt, but do no hurt to the young. Goats climb the precipices of mountains to browſe on the tender ſhrubs; and to fit them for it, they have legs made for jumping.

(72.) So various are the appetites of animals, that there is ſcarcely any plant which is not choſen by ſome, and left untouched by others. The horſe leaves the water hemlock to the goat. The cow yields the long-leaved water hemlock to the ſheep. The goat gives up the monks hood to the horſe, &c.; for that which certain animals fatten upon, others diſlike. Hence no plant is abſolutely poiſonous, but only reſpectively. Thus the ſpurge, that is noxious to man, is a wholeſome nouriſhment to the caterpillar. That brutes may not poiſon themſelves, each is guarded by ſuch delicacy of ſmell, that they eaſily diſtinguiſh pernicious plants from wholeſome; and when different animals feed upon the ſame field, one kind always leaves ſomething for the other, as the mouths of all are not equally adapted to lay hold of the graſs; whereby there is ſufficient food for all. An œconomical experiment has been made by the Dutch, that where 8 cows have been in a paſture, and can no longer get nouriſhment, two horſes feed well there for ſome days; and when nothing is left for the horſes, 4 ſheep will live upon it. Swine turn up the earth for ſucculent roots: the leaves and fruits of trees are intended as food for ſome animals, as the ſloth, and the ſquirrel; and theſe have feet fit for climbing.

(73.) Beſides myriads of fiſhes, the caſtor, the ſea calf, and other amphibious quadrupeds, inhabit the water, and their hinder feet are formed for ſwimming, and perfectly adapted to their manner of life. The whole order of the gooſe kind, as ducks, merganſers, &c. live in water, feeding upon water inſects, fiſhes, and their eggs. Their beaks, their necks, their feet, and their feathers, exactly ſuit their manner of life.

(74.) The manner of living of the ſea-ſwallow deſerves to be particularly noticed; for as he cannot ſo commodiouſly plunge into the water, and catch fiſh, as other aquatic birds, the ſea-gull becomes his caterer. When this laſt is purſued by the former, he throws up part of his prey, which the other catches; but in autumn, when the fiſhes hide themſelves in deep places, the merganſer ſupplies the gull with food, being able to plunge deeper into the ſea. The chief granary of ſmall birds is the knot graſs, that bears heavy ſeeds like thoſe of the black bind-weed. It is a very common plant, not eaſily deſtroyed, and is very plentiful after harveſt in fields, to which it gives a reddiſh hue by its numerous ſeeds. Theſe lie upon the ground, and are gathered all the year round by the ſmall birds. Many ſmall birds feed upon the ſeeds of plantain, particularly linnets. The goldfinch lives upon the ſeed of thiſtles.

(75.) Some animals, as ſnakes and frogs, having neither wings to fly, nor feet to run with, would ſcarcely have any means of taking their

rey, were it not that ſome animals run, as it
ere, of their own accord, into their mouths.
7hen the rattle-ſnake, with open jaws fixes his
yes upon a bird, fly, or ſquirrel, ſitting on a tree,
ey fly down his throat, being rendered ſtupid,
id giving themſelves up as deſtitute of all re-
ige. How dreadful this ſerpent is to other ani-
ials will appear by an account we have in a trea-
ſe entitled, *Radix Senega;* where the author
lman. Academ. tom. 2.) ſays, one of theſe terri-
e ſerpents got into the houſe of governor Blake
Carolina; where it would have long lain con-
aled, had it not been that all the domeſtic ani-
als, as dogs, hogs, turkeys, and fowls, admo-
ſhed the family by their unuſual cries, equally
owing their horror and conſternation, their hair,
iſtles, and creſts, ſtanding up on end. On the
her hand, we cannot but adore the Creator's
odneſs towards man, when we conſider the rat-
: which terminates this ſerpent's tail: for by
at we are warned againſt this dreadful enemy;
hoſe poiſon kills in ſix hours, ſometimes in half
hour.

(76.) Much providential care ſeems to be taken
r the preſervation of thoſe animals, which, at a
rtain time of the year, are by the rigour of the
iſon excluded from the neceſſaries of life. Thus
e bear in autumn creeps into the moſs which
has gathered, and lies there all winter; ſub-
ting upon his fat, collected during ſummer in
e cellular membrane, and which ſupplies the
ace of food. The hedge-hog, badger, and
ole, in the ſame manner fill their winter-quar-
s with vegetables, and ſleep during the froſts.
he bat ſeems quite dead all winter. Moſt of
e amphibious animals get into dens, or to the
ttom of lakes and pools.

(77.) In autumn, as the cold approaches, and
ects diſappear, ſwallows migrate into other
mes in ſearch of food and a milder temperature
air. Thoſe young birds, which are incapable
diſtant flights, ſeek an aſylum againſt the vio-
ice of the cold in the bottom of lakes, amongſt
e reeds and ruſhes. (See Hirundo.) The pe-
altic motion of the bowels ceaſes in all theſe
imals while they are obliged to faſt; whence
e appetite is diminiſhed, and ſo they ſuffer no-
ng from hunger. The celebrated Liſter ob-
ves of thoſe animals, that their blood when let
o a veſſel, does not coagulate, as that of all
ier animals; and ſo is no leſs fit for circulation
in before.

(78.) The moor-fowls work for themſelves
lks under the ſnow. They moult in ſummer;
that about Auguſt they cannot fly, and are
erefore obliged to run into the woods; but
n the moor-berries and bilberries are ripe,
ence they are abundantly ſupplied with food.
hereas the young do not moult the firſt ſum-
r; and therefore, though they cannot run ſo
ll, are able to eſcape danger by flight. The
t of the birds who feed upon inſects migrate
ry year to foreign regions, to ſeek food in a
lder climate; while all the northern parts,
ere they live well in ſummer, are covered with
w. See Migration, § 2. By theſe migra-
ns, birds alſo become uſeful to many different
ntries, and are diſtributed over almoſt all the globe. And all of them exactly obſerve the times of coming and going.

(79.) Insects in winter generally lie hid within their caſes, and are nouriſhed by the ſurrounding liquor like the fœtus of other animals; whence, at the approach of ſpring, they awake, and fly forth. However, all animals which lie hid in winter do not obſerve theſe laws of faſting. Some provide ſtore-houſes in ſummer and autumn, from which they take what is neceſſary: as mice, jays, ſquirrels, bees, beavers, &c.

(80.) III. Destruction. All animals do not live upon vegetables. There are ſome which feed upon animalculæ; and there are many others which daily deſtroy numbers of the peaceable kind. The weaker generally are infeſted by the ſtronger in a continued ſeries. Thus the tree-louſe lives upon plants. The *muſca aphidivora* lives upon the tree-louſe; the hornet and waſp fly, upon the muſca aphidivora; the dragon fly, upon the hornet and waſp fly; the ſpider, on the dragon fly; the ſmall birds on the ſpider; and the hawks on the ſmall birds.

(81.) The monoculus delights in putrid waters, the gnat eats the monoculus, the frog devours the gnat, the pike ſwallows the frog, the ſea-calf eats the pike. The bat and goat-ſucker make their excurſions only at night, that they may catch the moths, which then fly about in vaſt numbers. The woodpecker pulls out the inſects which lie hid in the trunks of trees. The ſwallow purſues thoſe which fly about in the open air. The mole purſues worms. The large fiſhes devour the ſmall. We ſcarcely know an animal which has not ſome enemy to contend with.

(82.) Among quadrupeds, wild beaſts are moſt remarkably deſtructive to others; and the falcon kind among birds. But that they may not, by too general a butchery, deſtroy a whole ſpecies, theſe are circumſcribed within certain bounds. The moſt fierce are few in proportion to other animals. They are not to be found in many countries. Thus France and Britain breed no wolves, and the northern countries no tigers or lions. Theſe fierce animals ſometimes deſtroy one another. Thus the wolf devours the fox. The dog purſues both the wolf and fox; and wolves ſometimes venture to attack a bear. The male tiger often devours its own whelps. Dogs are ſometimes ſeized with madneſs, and deſtroy their fellows. Wild beaſts ſeldom arrive at ſo great an age as animals which live on vegetables; for they are ſubject, from their alkaline diet, to various diſeaſes, which bring them ſooner to an end.

(83.) But although all animals are infeſted by their peculiar enemies, yet the weakeſt are often able to eſcape their violence. Thus the hare often eludes the dog by her windings. When the bear attacks ſheep and cattle, theſe draw up together for mutual defence. Horſes join heads together, and fight with their heels. Oxen join tails, and fight with their horns. Swine get together in herds, and boldly oppoſe themſelves to any attack, ſo that they are not eaſily overcome; and all of them place their young in the middle, that they may remain ſafe during the battle. Birds, by their different ways of flying, often eſcape the hawk. If the pigeon had the ſame way of flying as the hawk, ſhe would hardly ever eſcape his claws.

(84.) Some animals conſult their ſafety by night. When horſes ſleep in woods, one by turn remains awake, and keeps watch. When monkeys in Braſil ſleep upon trees, one of them keeps awake, to give the ſign when the tiger creeps towards them; and in caſe he ſleep, the reſt tear him to pieces. Hence rapacious animals are not always ſucceſsful in their hunting. For this reaſon they can bear faſting a long time. Thus the lion lurks in his den many days without famiſhing; and the wolf, when he has once well ſatisfied his hunger, can faſt many weeks without inconvenience.

(85.) There are ſome viviparous flies which bring forth 2000 young. Theſe in a little time would fill the air, and like clouds intercept the rays of the ſun, unleſs they were devoured by birds, ſpiders, and many other animals. STORKS and cranes free Egypt from frogs, which, after the inundation of the Nile, cover the whole country. Falcons clear Paleſtine of mice. Bellonius ſays, "The ſtorks come to Egypt in ſuch abundance, that the fields and meadows are white with them. Yet frogs are generated in ſuch numbers there, that did not the ſtorks devour them, they would over-run every thing. They alſo catch and eat ſerpents. Between Belba and Gaza, the fields of Paleſtine are often deſart on account of the abundance of mice and rats; and were they not deſtroyed by the falcons, the inhabitants could have no harveſt."

(86.) The white fox is of equal advantage in the Lapland Alps; as he deſtroys the Norway rats, which are generated there in great abundance, and thus hinders them from increaſing too much, which would be the deſtruction of vegetables.

(87.) Human reaſon cannot account for this circuit of animation and deſtruction. It is ſufficient for us, that nothing is created in vain; and that whatever is made, is made with ſupreme wiſdom. It does not become us, nor indeed do our preſent faculties enable us, to pry too boldly into the deſigns of God. In many parts of the œconomy of nature, however, we ſee evident marks of divine wiſdom: and throughout the whole of it aſtoniſhing proofs of infinite power. This united with infinite goodneſs muſt finally produce a happy conſummation.

(88.) The whole world would be ſuffocated with carcaſes and ſtinking effluvia, if ſome animals did not delight to feed upon them. Therefore, when an animal dies, bears, wolves, foxes, ravens, &c. quickly devour the body and carry it all away. When the carcaſes of fiſhes are driven near the ſhore, the voracious kinds, ſuch as the thornback, the hound-fiſh, the conger-eel, &c. gather about and eat them. And as the flux and reflux ſoon change the ſtate of the ſea, they themſelves are often detained in pits, and become a prey to the wild beaſts that frequent the ſhores. Thus the earth is not only kept clean from the putrefaction of carcaſes, but the neceſſaries of life are provided for many animals. In like manner many inſects at once promote their own good, and that of other animals. Thus gnats lay their eggs in ſtagnant, putrid, and ſtinking waters, and the grubs that ariſe from theſe eggs clear a all the putrefaction. This appears from a ſimpl experiment; fill two veſſels with putrid water leave the grubs in one, and take them all out the other; the water that is full of grubs will ſo become pure and without any ſtench, while th which has no grubs will continue ſtinking.

(89.) Lice increaſe in a wonderful manner the heads of children that are ſcabby; yet th are not without their uſe, for they conſume redundant humours. Beetles in ſummer extra all moiſt and glutinous matter out of the dung cattle, ſo that it becomes like duſt, and is ſprea by the wind over the ground. Were it not this, the vegetables that lie under the dung wo be ſo far from thriving, that all the ſpot wou be rendered barren. As the excrements of do is of ſo ſeptic a nature that no inſect will touc them, and therefore they cannot be diſperſed them, theſe animals exonerate upon ſtones trunks of trees, that vegetables may not be by them. Cats, being domeſtic animals, natur bury their dung.

(90.) All theſe treaſures of nature, ſo arti contrived, ſo wonderfully propagated, ſo pro dentially ſupported, ſeem intended by the Cre for the uſe of man. Every thing may be ma ſubſervient to his uſe, mediately or immedia By reaſon and various inventions, man tames fierceſt animals; purſues and catches the ſwif and is able to reach even thoſe which traverſe waters of the ſea. By cultivation, he increa the number of vegetables immenſely; and by and ingenuity, obtains whatever is convenie neceſſary for food, drink, cloathing, medi navigation, and many other purpoſes.

(91.) He can go down into the abyſs of earth, and almoſt ſearch its very bowels. He c procure fragments from the moſt rocky mou tains, make the hardeſt ſtones fluid like w ſeparate the uſeful metals from the droſs, turn the fineſt ſand to uſe. In ſhort, whe take a review of created things, we may rea ably infer, that all things are made for man; for this end more eſpecially, that he, by adm the works of the Creator, ſhould extol his g and enjoy thoſe things of which he ſtands in in order to paſs his life conveniently and pleaſa

(92.) Such are a few of the outlines of the ſent CONSTITUTION OF NATURE, wherein, t there appears a great mixture of good and evil, h pineſs and miſery, pleaſure and pain, yet GOOD on the whole PREDOMINATES, in ſo far, th partial evil tends to produce univerſal good, deſtruction itſelf contributes to *renovation*. T ſuch, however, was not the *original* conſtitu of nature, we are certain, as the divine auth nature hath aſſured us, that ALL THINGS at firſt created VERY GOOD: and that they all ultimately *become* ſo, at the final reſtitutio all things, we have the ſame great author believe, when the period ſhall arrive, that " leopard ſhall lie down with the lamb, the lion and the fatling together; and there ſha nothing to hurt or to defile in all God's mountain."

APPENDIX.

Of TREATISES *on* NATURAL HISTORY, *and of the* ARRANGEMENT *of a* MUSÆUM.

(93.) Beſides general natural hiſtories, as thoſe of Pliny; &c. there are particular ones, of two kinds: 1. Thoſe which only conſider one kind of things; ſuch as the Hiſtory of Shells, by Dr Liſter; of Fiſhes, by Willoughby; that of Birds, by the ſame; that of Plants, by LINNÆUS; of nſects, by Swammerdam and Mouffet; that of Animals, by Geſner; that of Foſſils, by Agricola, Mercatus, &c. 2. Thoſe which conſider the ſeveral kinds of natural things found in particular countries or provinces; as, the Natural Hiſtory of Dauphiné, by Chorier; the Natural Hiſtory of he Antilles, by F. Du Tertre, and M. Lonvillers De Poincy; that of Oxfordſhire and Staffordſhire, by Dr Plott.; that of Lancaſhire, by Leigh; of Northamptonſhire, by Morton; that of the Weſtern Iſlands, by Martin, &c.

(94.) The natural hiſtory only of one particular place is a ſubject very extenſive in its materials, and not to be ſet about without great care and circumſpection. Mr BOYLE has favoured the world with a liſt of the heads under which to arrange hings, and what to inquire after on ſuch an occaſion. The general heads under which he comprehends the articles of this hiſtory are four; the hings which regard the heavens, the air, the waters, and the earth.

(95.) This ſubject concerning the works of nature, a very ſmall part of which we have here room to touch upon, is of ſuch importance and dignity, hat if it were to be properly treated in all its parts, men would find wherewithal to employ almoſt the whole powers of the mind: nay, time itſelf would fail before, with the moſt acute human ſagacity, we ſhould be able to diſcover the amazing œconomy, laws, and exquiſite ſtructure, even of the leaſt inſects.

(96.) In erecting a MUSEUM OF NATURAL HISTORY, the windows ought to be placed in the wo longeſt ſides of the building, that it may be qually lighted during the whole day. On one wing muſt be placed eleven preſſes, with ſhelves upported on wooden brackets. Theſe preſſes re intended for containing the *eleven* following laſſes of the MINERAL KINGDOM, which forms he original baſis of every thing pertaining to this lobe: viz. 1. Waters. 2. Earths. 3. Sands. . Stones. 5. Salts. 6. Pyrites. 7. Semimetals. . Metals. 9. Bitumens and ſulphurs. 10. Volcanic productions. 11. Petrifactions, foſſils, and *luſus naturæ*.

(97.) Or if the naturaliſt chooſes to adopt the modern arrangement of METALS, TEN preſſes may ſuffice; as one preſs in that caſe will contain pecimens of all the 22 metals, without the obſolete diſtinction of *ſemi-metals*. See METALLURGY, *Part* I. *Sect.* I; and MINERALOGY, *Part* II. *Chap.* VII. and *Part* III. *Chap.* V.

(98.) The advantage of ſuch an arrangement, where every thing is diſtinct, and diſtributed in the manner moſt advantageous for the inſpection of he ſtudent, is obvious. The preſſes muſt be provided with a wire grate, or covered with glaſs; and each of them muſt have a title on the cornice, indicating the claſs which it contains. Each ſhelf in the preſs ought alſo to have a ſmall title on the edge, ſpecifying the ſubſtances placed on it; and theſe ſhould be kept in clear glaſs bottles, well ſealed and furniſhed with proper titles alſo. In them are to be put earths, clays, turfs, ochres, chalks, marls, lapis ollaris, and micaceous ſtones, calcareous or lime ſtones, ſpars, congelations, ſtony reſidua, ſtalactites, alabaſter, gypſum, flints, rock-ſtones, rock and mineral cryſtals, ſalts, coals, and other bituminous bodies, lava, and the droſs of volcanoes. In the bottom of each preſs two ſpaces may be furniſhed with a conſiderable number of ſmall ſemicircular ſhelves, where pieces much eſteemed, and in complete preſervation, may be placed by themſelves, or on very ſmall pedeſtals; ſuch as tranſparent mineral ſalt, collections of coloured pyrites, the *Inca's* ſtone, aſbeſtos, lapis lazuli, &c. the whole properly titled and arranged according to their claſſes.

(99.) The preſs for METALS ought to contain ſelect and rare ſpecimens of the various ores of nickel, cobalt, biſmuth, antimony, manganeſe, arſenic, molybdænum, tungſten, uranium, titanium, tellurium, chrómum, zinc, tin, lead, iron, copper, quick-ſilver, columbium, ſilver, platinum, and gold; alſo beautiful needles of hematites, a powerful rough loadſtone, with the ſilky copper of China, and a collection of malachite; likewiſe virgin ſilver in vegetation. Theſe ſubſtances form a ſpectacle equally varied and inſtructive: in this department nature is as rich and brilliant as in the various kinds of ſtones.

(100.) The preſs for BITUMENS may contain ſpecimens of jet poliſhed on one ſide; amber of different colours, (which, when it is tranſparent, and contains inſects, ought to be poliſhed on the two oppoſite ſurfaces); a beautiful ſpecimen of ambergris, together with pieces of tranſparent red and yellow ſulphur.

(101.) In the preſs for PETRIFACTIONS or for FOSSILS may be placed, on ſemicircular ſhelves, the rareſt and the beſt preſerved pieces; ſuch as lilium lapideum, madrepores, tranſparent belemnites, foſſil urchins, the articulated nautilus, cornua ammonis ſawed and poliſhed, hyſterolite, lapis lenticularis, gryphites, calculi or bezoars, turquoiſes, loadſtones, gloſſopetræ; in ſhort, all kinds of figured ſtones, and alſo petrified wood.

(102.) In the preſs for STONES, we place different kinds of cryſtals, and all the precious ſtones in their matrix. Thoſe which are detached and uncut are placed in caſes or watch-glaſſes; but thoſe which have been cut and ſet are to be put in a jewel-box or open caſe for rings; as well as cups, ciſterns, or poliſhed plates of agate, cornelian, jade, ſardonyx, onyx, chalcedony, jaſper, porphyry, granite, marble, alabaſter, and Iceland cryſtal; Bologna ſtone, Labrador ſtone, ſerpentine ſtone, talc, amianthus, zete, baſaltes, touchſtone, together with Egyptian and Engliſh flints. With regard to impreſſed petrifactions, large arborizations, and Florence ſtones, if they are in good preſervation, they ſhould be framed and ſuſpended by hooks on the pilaſters which connect the preſſes of the mineral kingdom. Theſe preſſes are of an uniform height; but their breadth is proportioned to the ſize or number of the materials compoſing the claſs which it contains; and they are ſupported, as well as thoſe which are placed all around, on a cheſt of drawers breaſt high. Theſe drawers muſt correſpond to the preſſes above them, and contain ſubſtances of the ſame claſs. This methodical arrangement is a great help to the memory; as it occaſionally ſupplies the place of a numbered catalogue, and in a great multitude of objects it affords the beſt means of finding at once what we want.

(103.) In the mineral kingdom theſe drawers are very uſeful for containing earths, belemnites, entroches, aſtroites, and other polymorphous foſſils, univalve, bivalve, and multivalve ſhells, poliſhed petrifactions of bones and pieces of wood, collections of marbles and poliſhed flints, collections of ſilex, ſands, and amber, together with pieces procured from the melting of ores, ſuch as regulus, droſs, &c. Some parts of the mineral kingdom, ſuch as the earths and certain ſtones, make not a brilliant figure in a muſeum; they are however the moſt ſcientific parts of it, and the moſt intereſting to thoſe who prefer the tracing nature in her moſt important productions and fundamental operations, to gaudy colours and agreeable figures. Minerals in general require to be kept with great care, and ſo as not to be intermixed. Some of them, ſuch as the ſalts, eaſily diſſolve; and others, as the pyrites, are ſubject to efflorescence. Vegetables and animal bodies are likewiſe more or leſs liable to corruption; and to prevent this inconvenience, great pains muſt be taken in preſerving certain pieces which are ſubject to ſpeedy decay.

(104.) On the 2d wing of the cabinet are to be placed ten preſſes, diſtributed like thoſe of the mineral kingdom, and intended for containing the ten following diviſions of the VEGETABLE KINGDOM. Vegetables are organiſed bodies, but they poſſeſs not, like animals, ſpontaneous motion or feeling. 1. Roots. 2. Barks. 3. Woods and ſtalks. 4. Leaves. 5. Flowers. 6. Fruits and ſeeds. 7. Paraſite plants, agarics, and muſhrooms. 8. The juices of vegetables; as balſams and ſolid reſins, reſinous gums, and gums properly ſo called. 9. Extracted juices, ſugars, and dregs. 10. Marine plants, and plants growing on the ſhores of the ſea.

(105.) In this kingdom, the ſame order of preſſes, the ſame ſymmetry and arrangement, are to be obſerved as in the mineral kingdom. The ſemicircular ſhelves in the bottom of the preſſes are here very uſeful for containing, in ſmall ſquare phials, China varniſh, eſſential oils, and other aromatics of Arabia or India; with the roots of cumbou, mandragora, certain fruits, either monſtrous or natural, which grow in the Eaſt Indies, and which the natives ripen in large bottles with narrow necks, preſerved in ſpirits, ſuch as the caſhew-nut, &c. Here likewiſe are placed a number of fruits, remarkable for their rarity or great ſize; as cocoa nuts, gourds, the fruit of the baſtard locuſt-tree, the fruit of the ſand-box tree, banana figs, pine-apples, coloquintida apple, dogſbane, vegetable tumors or wens, and a branch of *bois de dentelle*, in which the three parts of the bark, eſpecially the *liber*, are diſtinctly ſeparated.

(106.) As the number of vegetables greatly exceeds that of minerals, we ſeldom put any thing in bottles but the dried parts of exotic plan which are uſed either in medicine or in the ar and thoſe likewiſe which we cultivate merely fro curioſity. With regard to indigenous plants, *herbal* is formed of land and ſea plants, paſted laid between leaves of paper collected into th ſhape of a book, and arranged according to th ſyſtem of the beſt botaniſts. To make this her as convenient as poſſible, it is proper to put th dried plants between two folds of dry paper, an arranging them according to their families, gen and ſpecies, to pile them one above another, openly on the ſhelves, or in large band-bo On the back of the band-boxes muſt be a title dicating the family, at the extremity another the name of the genus, and on each leaf the na of the ſpecies which it contains; the paper be looſe, that they may be changed at pleaſu The drawers are uſeful, partly for holding diſ ent kinds of woods with the bark, cut in ſuch manner as that the grain and contexture eaſily be diſtinguiſhed, and for containing a colle tion of the woods of both Indies in ſmall poliſh pieces, with proper titles. One part of the draw has ſeveral diviſions within, for the purpoſe holding ſeeds; and a ſmall title is inſcribed each of theſe diviſions.

(107.) Sea-weeds, and ſmall marine plants of elegant ſhape, which from their colour and va form agreeable pictures, may be framed and ſ pended by hooks to the pilaſters of the preſſes. the animal kingdom, preſervations, particularly inſects, are attended with irreparable devaſta Butterflies, ſtill more than the moſt beautiful bi are not only ſubject to deſtruction in this way, are alſo expoſed to great danger from the ra the ſun, either direct or reflected, which alter colour, make them loſe all their ſplendour, and ſome ſpecies, render it impoſſible to diſting them. In general, we cannot prevent the ſtruction of vegetables and animals, but by d them as much as poſſible, or by putting the prepared liquors, which muſt not be allowe evaporate. But dried animals and vegetab quire ſtill greater care; a great multitude ſects bred in April feed upon them, and de them internally before they are perceived; ought to be carefully watched during this pe which is about five months. The moiſtu winter and the heat of ſummer make it nece that the preſſes of muſæums ſhould be carefully ſhut, except perhaps thoſe which fa the north. The vapour of ſulphur in combu will kill theſe deſtructive inſects, either befo after they become perfect; the fumigation be carefully performed during dry weather, an a box made on purpoſe, into which only the cimens attacked are introduced.

(108.) On the 3d wing of the cabinet are pla preſſes for containing the ten following divi of the ANIMAL KINGDOM: 1. Lithophytes Zoophytes. 3. Teſtaceous animals. 4. Cruſtace animals. 5. Inſects. 6. Fiſhes. 7. Amphib animals, reptiles, and oviparous quadrupeds. Birds, with their neſts and eggs. 9. Vivipar- quadrupeds. 10. Man.

(109.) In theſe preſſes the ſame external de ration and diſtribution may be obſerved as preceding ones. The preſs for the LITHOPHYTES muſt be arranged in ſuch a manner as to preſent at one view the hiſtory of lithophytes, mandreporæ, and coral either rough or ſtript of its covering; the whole placed on ſmall wooden pedeſtals, blackened or gilded. Corallines, as well as fuci, may be paſted on a bit of paper, and put into a frame; ſuch pictures, when ſuſpended by hooks to the outſide of the pilaſters, always attract the attention of the ſpectators. If we have a conſiderable collection of them, it will be neceſ- ary to make a kind of herbal of them.

(110.) The preſs for ZOOPHYTES contains ponges, the marine jet d'eau, the pinna marina, iolothuriæ, and all thoſe ſubſtances which are alled *animal plants*, and molluſcæ, worms, &c. Theſe productions muſt be preſerved in rectified pirit of wine, which will be ſufficiently weakened y the water contained in them. Upon the ſides re ſea-ſtars, both prickly and ſmooth, with ſeveral ays, a Meduſa's head, &c.

(111.) The TESTACEOUS animals are preſerved in ottles among ſpirits. On the ſemicircular ſhelves t the bottom of the preſs are placed large ſhells, nd ſmall ones with their marine covering.

(112.) The preſs for CRUSTACEOUS animals onſiſts almoſt entirely of ſemicircular ſhelves; d contains crabs, cray-fiſh, &c. Small lobſters, uillæ, and all ſmall cruſtaceous animals, excepting the hermit crab, are put in frames.

(113.) Two kinds of INSECTS are put in the preſs ſtined for them. The firſt kind, after being dried, e put in ſmall wooden frames, which are varniſhed d glazed on two ſides, that we may view the ſects on both ſides; of this kind are flies, mantes, etles, butterflies with their nymphæ, chryſalides, c. Theſe animals form the moſt brilliant part of e cabinet, while the preſs for birds is the moſt iking; but great pains muſt be uſed in their eſervation. Other inſects, ſuch as graſhoppers, olopendræ, ſcorpions, ſalamanders, ſpiders, tantulas, caterpillars, and eſpecially all ſoft inſects, uſt be preſerved in ſpirits, and placed on ſemicular ſhelves at the bottom of the preſs. Here o are depoſited honey-combs, waſps neſts, and anches furniſhed with the neſts of the *cocci*, ich produce the gum-lac.

(114.) In the preſs for FISHES are to be n bottles containing foreign fiſhes, which are ays ſent home in ſpirits. The ſoft fiſhes of r own country are preſerved in the ſame manner. e ſkin of large fiſhes, whether found in ſalt or ſh water, is taken off and paſted on a bit of per; the two parts are ſometimes ſewed together, l the colours are renewed by means of varniſh. e flying fiſh muſt be ſuſpended about the top of preſs; and armed fiſhes, with oſtracia, on the lves below.

115.) The preſs for AMPHIBIOUS animals cons, in bottles full of ſpirit of wine diluted with m water, ſerpents, vipers, adders, frogs, toads, rds, ſmall land or water turtles, and a ſmall toiſe with its ſhell. The lower ſhelves are fured with a ſmall rattle-ſnake, a cameleon, a codile, a beaver, a ſea-lion, a ſea-calf, &c.

116.) The preſs for BIRDS is filled with animals hat claſs, both foreign and natives, ſtuffed and vided with glaſs eyes. The ſkin covered with the feathers may be preſerved perfect and dry by being fitted to a mould of tree-moſs, or filled with cotton, and ſprinkled on the inſide with pepper, camphire, and corroſive ſublimate, to defend it from the attack of moths, grubs, wood-lice, and dermeſtes. The ſpring and autumn are the beſt ſeaſons for this operation; the moulting time is very improper, becauſe it is unfavourable to the beautiful colour and the preſervation of the feathers, which are then full of blood. The birds, when thus prepared, and when the brain has been taken out, are then placed on their ſupports.—Some females may be placed in their neſts in the attitude of incubation; thoſe which are accuſtomed to perch may be placed on artificial trees; a wooden ſupporter, covered with moſs, turf, or artificial reeds, may be given to thoſe which live among ſuch plants.—Swimming birds are placed on the lowermoſt ſhelves, which muſt be covered with pieces of mirrors or ſilver gauze, in imitation of water. We muſt be careful to give each animal the moſt pictureſque attitude; to preſerve the proportions, together with the natural poſition of the legs, wings, head, body, and feathers; to obſerve an equilibrium in thoſe which are at reſt, and to avoid it it in thoſe which have a fighting attitude.—We muſt characteriſe the animal, repreſent his genius, diſpoſitions, graces, boldneſs, or timidity. In ſhort, we muſt endeavour to expreſs that beautiful *tout enſemble* which gives the appearance of life and motion to the whole. Theſe obſervations on birds are equally applicable to the other animals; but all of them muſt be arranged in a methodical order. The lower ſhelves contain the eggs and neſts of birds; and a collection of feathers is made in a book in the ſame manner as an *herbal*.

(117.) The preſs for QUADRUPEDS contains, preſerved in bottles, ſmall animals, ſuch as mice, rats, the opoſſum, &c. Other animals are ſtuffed, ſuch as the cat, the ſquirrel, the hedgehog, the porcupine, the armadillo, the Guinea pig, the wolf, the fox, the roebuck, the hare, the dog, &c.

(118.) The preſs containing ſpecimens of the *natural hiſtory of* MAN conſiſts of a complete myology, of a head ſeparately injected, of a brain and the organs of generation in both ſexes, of a neurology, an oſteology, embryos of all different ages, with their after-births, monſtrous fœtuſes, and an Egyptian mummy. Here likewiſe are put beautiful anatomical pieces in wax or wood, and ſtony concretions extracted from the human body. The preſervation of ſubjects in bottles with ſpirit of wine does not always ſucceed, becauſe they ſpoil as the ſpirit of wine evaporates, unleſs particular care be taken to examine the veſſels wherein they are contained, which requires time and pains, and is attended with expenſe. Mr Lewis Nicola, in the Philadelphia Tranſactions for 1771, recommends, after uſing the different methods pointed out by M. Reaumur, of putting ſubjects intended for preſervation in bottles filled with ſpirit of wine, to wipe well the neck of the bottle, and put a layer of putty, two lines thick, over the piece of ſkin or bladder which covers it. The bottle is then reverſed in a wooden cup, which they fill with melted tallow, or with a mixture of tallow and wax, to prevent the ſpirit of wine from evaporating.

(119.) The drawers under the preſſes of the *animal kingdom* contain ſmall detached parts of animals, ſuch as teeth, ſmall horns, jaw-bones, claws, beaks, nails, vertebræ, hairs, ſcales, balls of hair, and a collection of bones remarkable for blows, fractures, deformities, and diſeaſes.

(120.) To decorate a cabinet to the greateſt advantage, and to make one complete whole, the walls muſt be furniſhed throughout their whole extent. For this purpoſe the tops of the preſſes are commonly ornamented with ſhells of a very great ſize, foreign waſps hives, the horn of a rhinoceros, an elephant's trunk, the horn of an unicorn, urns and buſts of alabaſter, jaſper, marble, porphyry, or ſerpentine ſtone. Here likewiſe are placed figures of antique bronze, large lithophytes, animals made of ſhells, bouquets made of the wings of Scarabæus, gourds cut into two, painted, and made into bowls, plates, vaſes, &c. as they are uſed by ſavages; little trunks of bark, books made of the leaves of the palm tree, globes, ſpheres, &c. The floor of the cabinet may likewiſe be paved with different kinds of common ſtones which are ſuſceptible of a poliſh.

(121.) The cieling, which muſt be very white, is divided into three ſpaces, furniſhed with hooks and braſs wires. Here may be diſtributed in order different vegetable and animal productions, which are of too great a ſize to be contained in the preſſes; ſuch as, 1. The ſugar-cane, a branch of the palm-tree, the *Chineſe fan*, large cocoas, the leaf of the Banana tree, Indian and European ſticks, remarkable for the knots, tubercles, and ſpiral wreaths, which cover their whole length, a bamboo root divided longitudinally into two parts, and the different ſpecies of reed canes. 2. The ſkins of large animals; alſo ſtuffed animals, ſuch as lizards, crocodiles, caimans, and ſcaly lizards, a ſhark, a ſword-fiſh, a ſea-calf, a ſea-tortoiſe, large ſerpents, the horns of deer, wild goats, roe-bucks, and rein-deer. 3. The 3d ſpace is filled with Indian rackets, hammocks, dreſſes, and tufts of feathers; calumets or pipes; quivers, bows, and arrows; head-pieces, caps with feathers; aprons, necklaces, Chineſe neceſſaries, fans made of the leaves of the palm-tree, a gargoulette of Indoſtan, a Poliſh whip, Indian canoes, Chineſe muſical inſtruments, lances, weapons, Indian furniture and utenſils; and in ſhort, various curioſities from nations ancient and modern, if they can be found; and various furniture and utenſils of different nations, ancient and modern.

(122.) As the great extent of a fine collection requires that there be no empty ſpace, ſtands may be placed in different parts of the room, eſpecially at the corners, for ſupporting large vertebræ, the head of a ſea-cow, very large madrepores, or conſiderable collections either of rock cryſtal or of minerals.

(123.) In the middle of the room is placed a receptacle for ſhells, which is a large table or bureau with raiſed edges. The ſurface of this table is divided into 27 ſeparate caſes, of different ſizes, and proportioned to the 27 families of marine ſhells to be depoſited in them. Theſe diviſions are made with wood or paſteboard painted blue, and are ſometimes in the form of ſhelves; the bottom is covered with blue cotton or green ſattin, or with white linen, ſufficiently rough to keep the ſhells in their place. In ſome cabinets, theſe ſhelves are covered with mirrors on all their different ſurfaces, which ſhow the objects double, and give an opportunity of viewing them on the two oppoſite ſides. In other cabinets, the caſes for each family are diſtributed into a number of ſmaller diviſions, for containing the ſeveral ſpecies ſeparate from each other. The ſea-ſhells, contained in the receptacle for ſhells, are all cleaned, and preſent, in the variety of their figure and colours, together with their inequality, an agreeable and enchanting picture, which unites a methodical diſtribution to a ſymmetrical order. The upper part of this table is ſhut by a net-work of braſs wire covered with ſerge, or by a glaſs frame, to defend the ſhells from duſt. In the middle of the table there is a long elevated ſquare box, containing land and river ſhells. From the middle of each compartment, or at each family of ſhells, ariſes a ſmall pyramidal wooden pillar, on the top of which is a horizontal piece of paſteboard, denoting the kind of ſhells belonging to that diviſion. Each family is diſtinguiſhed from the adjoining one by thoſe ornaments of ſilk called caterpillars. By the different tints we perceive the limits and extent of each family in the ſame manner as the colours in a geographical map enable us to diſtinguiſh the ſeveral provinces of the ſame empire.

(124.) Under the table for ſhells, on the ſide of the windows, is a glazed cage, large enough to contain the ſkeletons of an animal belonging to each claſs; to wit, a fiſh, an amphibious animal, a reptile, a lizard, a bird, and a quadruped. To theſe we may add, for the ſake of the comparative oſteology, the ſkeletons of the intermediate individuals of theſe animals, together with thoſe which make the neareſt approaches to man, ſuch as the monkey, and the *ouran outang*. Below this table are likewiſe placed the beſt books connected with the different branches of natural hiſtory, eſpecially ſuch as have illuminated plates. The difficulty of acquiring the moſt valuable objects, and of preventing their deſtruction when once acquired, obliges us to have recourſe to figures, to preſerve a repreſentation of them. This is an infallible method of communicating, both to cotemporaries and to poſterity, the diſcoveries of the age in which the work was compoſed. Here alſo may be depoſited the *herbal* and the collection of foſſils arranged in the form of books.

(125.) The ſpace above the door is furniſhed with a large frame, filled with the ſkins of fiſhes, which are dried, varniſhed, and paſted on paper. The piers of the windows are furniſhed with one or two preſſes, with ſhelves, containing different kinds of inſtruments employed in phyſics, ſuch as an air-pump, a burning mirror, a perſpective glaſs, a magnifier, a microſcope, a teleſcope, magnets, &c. On the ſemicircular ſhelves below are placed ſtones formerly uſed by ſavages for hatchets, ſome curious pieces of lacker-work, Indian pagodas, trinkets belonging to the ſavages of the north and to the Chineſe, which are made of ivory or yellow amber, or of coral mount-with gold, ſilver, porcelain clay, *kriacks* of Siam, and Turkiſh *cangiars*, which are a kind of poniards, Indian curioſities of ſilver, and the galians which the Turks and Perſians uſe in ſmoking tobacco and aloes. The drawers under this preſs contain a collection of medals, china ink, lachrymatory phials, and the moſt beautiful engraved ſtones of Europe, or an impreſſion of them in wax or ſulphur, counters, cameos, antiques, taliſmans, ancient weights and meaſures, idols, urns, lamps, inſtruments of ſacrifice, and falſe jewels.

(126.) The embraſures of the windows muſt be furniſhed with pictures of ſtone in connected pieces. Here likewiſe, as well as in the embraſures and pannels of the door, may be put tubes hermetically ſealed, containing rare reptiles preſerved in proper liquours.

(127.) The ſcience of natural hiſtory is ſo prodigiouſly extenſive, that the longeſt life is far from being ſufficient to acquire a perfect knowledge of it: it is important beyond diſpute, becauſe it is the ſtudy of the works of God. In all the articles connected with this ſubject, and forming particular parts of it, (to which we refer), we have made great uſe of the works of the celebrated Linnæus, who arranged the three kingdoms into regular ſyſtems, of which botany is the moſt complete. Buffon, and ſome other eminent naturaliſts, have written on this ſubject without regard to ſyſtematic arrangement. Dr Berkenhout's works on this ſcience are very uſeful; particularly becauſe he tranſlates Latin names, &c. Bomare's Natural Hiſtory, in 15 vols 8vo, is alſo a work of conſiderable importance, publiſhed in 1791.

(128.) The moſt complete ſyſtem, however, of natural hiſtory which has been yet given to the public, is that of LINNÆUS, in his *Syſtema Naturæ*, of which a new and improved edition is publiſhed by Dr GMELIN, and tranſlated by Mr KERR. Of this valuable work, a view will be found under the article ZOOLOGY. See alſo BOTANY, ENTOMOLOGY, ICHTHYOLOGY, MINERALOGY, ORNITHOLOGY, and the other branches of Natural Hiſtory; with the various claſſes, orders, and genera of animals, plants, &c. in their order.

* NATURALIST. *n. ſ.* [from *natural.*] A ſtudent in phyſics or natural philoſophy.—Admirable artifice! wherewith Galen, though a mere *naturaliſt*, was ſo taken, that he could not but adjudge the honour of a hymn to the wiſe Creator. *More.*—It is not credible that the *naturaliſt* could be deceived in his account of a place that lay in the neighbourhood of Rome. *Addiſon.*

(1.) * NATURALIZATION. *n. ſ.* [from *naturalize.*] The act of inveſting aliens with the privileges of native ſubjects.—The Spartans were nice in point of *naturalization*; whereby, while they kept their compaſs, they ſtood firm. *Bacon.*—Encouragement may be given to any merchants that ſhall come over and turn a certain ſtock of their own, as *naturalization*, and freedom from cuſtoms the two firſt years. *Temple.*—Enemies, by taking advantage of the general *naturalization* act, invited over foreigners of all religions. *Swift.*

(2.) NATURALIZATION, in law. No aliens can be naturalized unleſs they have received the ſacrament within one month before the bringing in of the bill, and taken the oaths of allegiance and ſupremacy in the preſence of the parliament. A perſon who is naturalized may have lands by deſcent, as heir at law, as well as obtain them by purchaſe; but he is diſabled from being a member of the privy council or parliament, or from holding offices, 7 Jac. I. cap. 2, 12 Will. III. cap. 2. All children born out of the king's dominions, whoſe fathers were or are ſubjects of this kingdom at the time of their birth, are adjudged to be natural born ſubjects of this realm, except children of parents attainted of treaſon, or that are in the actual ſervice of a foreign prince at enmity with us, 4 Geo. II. cap. 21. Every foreign ſeamen, who in time of war ſerves two years on board an Engliſh ſhip, is *ipſo facto* naturalized, 13 Geo. II. cap. 3. And all foreign Proteſtants and Jews, upon their reſiding ſeven years in any of the Britiſh colonies, without being abſent above two months at a time, or ſerving two years in a military capacity there, are, upon taking the oaths naturalized to all intents and purpoſes, as if they had been born in this kingdom; and therefore are admiſſible to all ſuch privileges, and no other, as Proteſtants or Jews born in this kingdom are entitled to. See ALIEN and DENIZEN. In France, before the Revolution, naturalization was the king's prerogative; in England it is only done by act of parliament. In the former of thoſe places, before their government was overturned, Swiſs, Savoyards, and Scots did not require naturalization, being reputed *regnicoles* or natives.

* NATURALLY. *adv.* [from *natural.*] 1. According to the power or impulſes of unaſſiſted nature.—Our ſovereign good is deſired *naturally*; but man, having utterly diſabled his nature, hath received from heaven a law to teach him, how that which is deſired *naturally* muſt now ſupernaturally be attained. *Hooker.*—If ſenſe be not certain in the reports it makes of things to the mind, there can be *naturally* no ſuch thing as certainty of knowledge. *South.*—When you have once habituated your heart to a ſerious performance of holy interceſſion, you have done a great deal to make it *naturally* delight in the happineſs of mankind. *Law.* 2. According to nature; without affectation; with a juſt repreſentation.—

Theſe things ſo in my ſon, I *naturally* may ſhow;
Now as the mountain high; then as the valley low. *Dray.*

That part
Was aptly fitted, *nat'rally* perform'd. *Shak.*

—This anſwers fitly and *naturally* to the place of the abyſs before the deluge, incloſ'd within the earth. *Burnet.*—The thoughts are to be meaſured only by their propriety; that is, as they flow more or leſs *naturally* from the perſons and occaſions.

ſions. *Dryden.* 3. Spontaneouſly; without art; without cultivation: as there is no place where wheat *naturally* grows.

* NATURALNESS. *n. ſ.* [from *natural.*] 1. The ſtate of being given or produced by nature.—The *naturalneſs* of a deſire is the cauſe that the ſatisfaction of it is pleaſure. *South.* 2. Conformity to truth and reality; not affectation.—He muſt underſtand what is contained in the temperament of the eyes, in the *naturalneſs* of the eyebrows. *Dryden.*—Horace ſpeaks of theſe parts in an ode that may be reckoned among the fineſt for the *naturalneſs* of the thought, and the beauty of the expreſſion. *Addiſon.*

NATURAL NOTE, in muſic, is uſed in oppoſition to flat and ſharp notes, which are called *artificial notes.* See NOTE, SCALE, &c.

NATURAL PHILOSOPHY is commonly defined to be that art or ſcience, which conſiders the powers and properties of natural bodies, and their mutual actions on one another. The province of MORAL PHILOSOPHY is the mind of man; its inquiries and reſearches are into the intellectual world. Natural philoſophy, on the other hand, is only concerned with the material part of the creation. The moraliſt's buſineſs is to inquire into the nature of virtue, the cauſes and effects of vice, to propoſe remedies for it, and to point out the mode of attaining happineſs, which only can be the reſult of virtuous conduct. The naturaliſt, on the contrary, has nothing to do with ſpirit; his buſineſs is ſolely about body or matter; and he ought to have a ſolid and accurate knowledge of all material ſubſtances, together with their affections and properties; and, if poſſible, he is to inveſtigate the reaſons of ſuch and ſuch appearances. Indeed, the firſt and principal part of this ſcience is to collect all the manifeſt and ſenſible appearances of things, and reduce them into a body of natural hiſtory. Philoſophy has often been ſaid, and is even now very generally thought, to mean an inquiry into all the cauſes of things; but experience informs us, that though we are acquainted with a good number of effects, we can trace but few of their cauſes; ſo that philoſophy itſelf will really be found to be in general but a collection of facts. Still, however, it differs from natural hiſtory in its appropriated ſenſe; the buſineſs of which is only to obſerve the appearances of natural bodies ſeparately, and from theſe appearances to claſs them with other bodies: natural philoſophy goes farther, and recites the actions of two or more bodies of the ſame or different kinds upon one another; and though it can neither inveſtigate nor point out the cauſes of thoſe effects, whatever they are, yet, from mathematical reaſoning combined with experience, it can be demonſtrated, that in ſuch circumſtances ſuch effects muſt always take place. There are evidently two ways of making obſervations on the material world: the firſt is, when we view things nearly as they happen to turn up, without any deſign or intervention of our own: in which way, indeed, no great improvements can be expected in the art, becauſe chance, having the direction, only exhibits occaſional extemporary properties. The other method is, when, after a thorough acquaintance with bodies, we apply them to other bodies equally known, diligently attending to the reſult, and obſerving whether any thing new ariſes. Such ſeems in general to be the nature of our article; nor is it our intention to be much more particular at preſent. We muſt therefore refer our readers reſpectively to thoſe parts of the ſubject, reſpecting which they wiſh for more ſatisfaction and minuter details. The ancient and modern definitions of the word *philoſophy,* together with its origin, as well as the manner of philoſophiſing in former times as well as at preſent, with the gradual improvement of ſcience, particularly natural, we ſhall introduce, we think, more properly under the words PHILOSOPHY and PHYSICS. We need only add under the preſent article, what however is well known, that natural philoſophy was till lately divided only into four parts, commonly called the *four branches,* viz. 1. Mechanics; 2. Hydroſtatics: 3. Optics; and 4. Aſtronomy: and theſe again are ſubdivided into various parts. Modern diſcoveries have added, however, two more parts to the number, viz. magnetiſm and electricity, whoſe properties and effects, &c. have been wonderfully unfolded of late years. It is remarkable that in the Engliſh univerſities these two latter branches are never taken notice of in lecturing on natural philoſophy, the old diviſion being ſtill retained, without any mention of theſe two important articles. The reaſon may be, that they are only ſubject to experiment, and not yet reduced to mathematical reaſoning; which is the method of teaching philoſophy in one of thoſe celebrated ſeminaries. Of theſe branches of this extenſive ſcience, it is not our intention to take even a general view in this place. We muſt therefore refer our readers to each particular article, where they will find them treated at conſiderable length.

NATURAL RELIGION. See THEOLOGY.

NATURALS, among phyſicians; whatever naturally belongs to an animal, in oppoſition to non-naturals. See NON-NATURALS.

(1.) * NATURE. *n. ſ.* [*natura,* Latin; *nature,* French.] 1. An imaginary being ſuppoſed to preſide over the material and animal world.—

Thou, *nature,* art my goddeſs; to thy law
My ſervices are bound. *Shak.*

—When it was ſaid to Anaxagoras, the Athenians have condemned you to die; he ſaid, and nature them. *Bacon.*—

Let the poſtilion *nature* mount, and let
The coachman art be ſet. *Cowley.*
Heav'n beſtows
At home all riches that wiſe *nature* needs. *Cowley.*
Simple *nature* to his hope has giv'n,
Beyond the cloud-topt hill, an humbler heav'n.
Pope.

2. The native ſtate or properties of any thing, by which it is diſcriminated from others.—

Why leap'd the hills, why did the mountains
ſhake?
What ailed them their fix'd *natures* to forſake?
Cowley.

—Between the corporeal and intellectual world, there is a man participating much of both natures. *Hale.*—The *nature* of brutes doth conſiſt in having ſuch faculties, whereby they are capable of apprehending external objects, and of receiving pain or pleaſure from them. *Wilkins*. 3. The conſtitution of an animated body.—

Nature, as it grows again tow'rd earth,
Is faſhion'd for the journey, dull and heavy.
Shak.

We're not ourſelves,
When *nature*, being oppreſt, commands the mind
To ſuffer with the body. *Shak.*

4. Diſpoſition of mind; temper.—

Nothing could have ſubdued *nature*
To ſuch a lowneſs but his unkind daughters.
Shak.

A credulous father, and a brother noble,
Whoſe *nature* is ſo far from doing harms,
That he ſuſpects none. *Shak.*

5. The regular courſe of things.—

My end
Was wrought by *nature*, not by vile offence.
Shak.

6. The compaſs of natural exiſtence.—If their dam may be judge, the young apes are the moſt beautiful things in *nature*. *Glanville*. 7. The conſtitution and appearance of things.—The works, whether of poets, painters, moraliſts, or hiſtorians, which are built upon general *nature*, live for ever. *Reynolds*. 8. Natural affection, or reverence; native ſenſations.—

Have we not ſeen
The murd'ring ſon aſcend his parent's bed,
Thro' violated *nature* force his way? *Pope.*

9. The ſtate or operation of the material world.—

He binding *nature* faſt in fate,
Left conſcience free and will. *Pope.*

10. Sort; ſpecies.—A diſpute of this *nature* cauſed miſchief in abundance. *Dryden*. 11. Sentiments or images adapted to nature, or conformable to truth and reality.—Only *nature* can pleaſe thoſe taſtes which are unprejudiced and refined. *Addiſ.*

Nature and Homer were, he found, the ſame.
Pope.

12. Phyſics; the ſcience which teaches the qualities of things.—

Nature and *nature's* laws lay hid in night;
God ſaid, let Newton be, and all was light.
Pope.

13. Of this word which occurs ſo frequently, with ſignifications ſo various, and ſo difficultly defined, Boyle has given an explication, which deſerves to be epitomiſed.—*Nature* ſometimes means the Author of Nature, *natura naturans*; as, *nature* hath made man partly corporeal and partly immaterial. For *nature* in this ſenſe may be uſed the word *creator*. *Nature* ſometimes means that on whoſe account a thing is what it is, and is called, as when we define the nature of an angle. For *nature* in this may be uſed *eſſence*, or *quality*. *Nature* ſometimes means what belongs to a living creature at its nativity, or accrues to it by its birth, as when we ſay, a man is noble by *nature*, or a child is *naturally* forward. This may be expreſſed by ſaying, *the man was born ſo*, or *the thing was generated ſuch*. *Nature* ſometimes means an internal principle of local motion, as we ſay, the ſtone falls, or the flame riſes by *nature*; for this we may ſay, that *the motion up or down is ſpontaneous*, or *produced by its proper cauſe*. *Nature* ſometimes means the eſtabliſhed courſe of things corporeal; as, *nature* makes the night ſucceed the day. This may be termed *eſtabliſhed order*, or *ſettled courſe*. *Nature* means ſometimes the aggregate of the powers belonging to a body, eſpecially a living one; as when phyſicians ſay, that *nature* is ſtrong, or *nature*, left to herſelf, will do the cure. For this may be uſed, *conſtitution*, *temperament*, or *ſtructure of the body*. *Nature* is put likewiſe for the ſyſtem of the corporeal works of God; as there is no phœnix or chimera in *nature*. For *nature* thus applied, we may uſe *the world*, or *the univerſe*. *Nature* is ſometimes indeed commonly taken for a kind of ſemi-deity. In this ſenſe it is beſt not to uſe it all. *Boyle's Free Enquiry*.

(2.) NATURE.—Mr Boyle, after giving the 8 definitions above quoted, by Dr Johnſon, (§ 1. *def.* 13.) adds, "If I were to propoſe a notion of nature, leſs ambiguous than thoſe already mentioned, and with regard to which many axioms relating to that word may be conveniently underſtood, I ſhould firſt diſtinguiſh between the univerſal and the particular nature of things. Univerſal nature I would define to be the aggregate of the bodies that make up the world in its preſent ſtate, conſidered as a principle; by virthe whereof they act and ſuffer, according to the laws of motion preſcribed by the Author of all things. And this makes way for the other ſubordinate notion; ſince the particular nature of an individual conſiſts in the general nature applied to a diſtinct portion of the univerſe; or, which is the ſame thing, it is a particular aſſemblage of the mechanical properties of matter, as figure, motion," &c.

(3.) NATURE, ABUSES OF THE WORD. The Rev. Mr Thomas Roberts, in his *Letters to M. Volney*, (who in his *Ruins of Empires*, has the atheiſtical aſſurance to affirm, "that the idea of God is merely that of *the powers of nature*,") has the following among many other judicious obſervations:—"Of the abuſe of words (ſays Mr Roberts) there is an inſtance in writers on morals, which ought to be noticed. It is cuſtomary, in ſpeaking of *nature*, to wreſt the ſignification, and to make it ſtand for *ſome indiſtinct being*. The ſame may be ſaid of the expreſſion a *ſecret cauſe*. Either puts the idea of GOD, as a really exiſting being, out of ſight, the conſequence of which is evidently *atheiſm*, and too little care has been taken in avoiding this conſequence."—Of this abuſe of the word, a moſt remarkable inſtance occurred lately in this city, within theſe two years; when a certain public lecturer, both in his lectures and proſpectus, uſed the unjuſtifiable expreſſions "*wiſdom* of Nature," and "*goodneſs* of Nature."

(4.) NATURE, CALENDAR OF. See GARDENING, *Sect.* V.

(5.) NATURE, KINGDOMS OF. See KINGDOM, § 2.

(6.) NATURE, OPERATIONS OF. See NATURAL HISTORY.

* NATURITY. *n. ſ.* [from *nature*.] The ſtate of being produced by nature. A word not uſed. —This cannot be allowed, except we impute that unto the firſt cauſe which we impoſe not on the ſecond; or what we deny unto nature we impute unto *naturity*. *Brown*.

(1.) NAVA, in ancient geography, a river of Gallia Belgica, which runs NE. into the left or W. ſide of the Rhine: now called **Nahe.**

(2.) **Nava**, a ci-devant county of Piedmont, now annexed to the French empire, and included in the department of Tanaro.

NAVAB. See **Nabob.**

(1.) NAVAGIERO, Andrew, a noble Venetian hiſtorian of the 16th century, who began a Hiſtory of Venice, but died without completing it. His other works were printed at Padua in 4to, in 1718. He died in 1529, going on an embaſſy to Francis I.

(2.) **Navagiero**, Bernard, Bp. of Verona, a relation of the preceding. He wrote a life of Pope Paul IV, and was employed in ſeveral embaſſies.

(1.) * NAVAL. *adj.* [*naval*, Fr. *navalis*, Lat.] 1. Conſiſting of ſhips.—

Encamping on the main,
Our *naval* army had beſieged Spain. *Waller.*
As our high veſſels paſs their wat'ry way,
Let all the *naval* world due homage pay. *Prior.*

2. Belonging to ſhips.—Maſters of ſuch numbers of ſtrong and valiant men, as well as of all the *naval* ſtores that furniſh the world. *Temple.*

(2.) **Naval Architecture.** See **Ship-building.**

(3.) **Naval Camp**, in antiquity, a fortification, conſiſting of a ditch and parapet on the land ſide, or a wall built in the form of a ſemicircle, and extended from one point of the ſea to another. This was ſometimes defended with towers, and beautified with gates, through which they iſſued forth to attack their enemies. Homer hath left us a remarkable deſcription of the Grecian fortifications of this ſort, in the Trojan war, beginning at v. 436. Iliad. Towards the ſea, or within it, they fixed great pales of wood, like thoſe in their artificial harbours; before theſe the veſſels of burden were placed in ſuch order, as that they might be inſtead of a wall, and give protection to thoſe within; in which manner Nicias is reported by Thucydides to have encamped himſelf: but this ſeems only to have been practiſed when the enemy was thought ſuperior in ſtrength, and raiſed great apprehenſions of danger in them. When their fortifications were thought ſtrong enough to defend them from the aſſaults of enemies, it was frequent to drag their ſhips to ſhore, which the Greeks called ανελκειν, the Romans *ſubducere.* Around the ſhips the ſoldiers diſpoſed their tents, as appears every where in Homer: but this ſeems only to have been practiſed in winter, when their enemy's fleet was laid up and could not aſſault them; or in long ſieges, and when they lay in no danger from their enemies by ſea; as in the Trojan war, where the defenders of Troy never once attempted to encounter the Grecians in a ſea-fight. The adjacent places were uſually filled with inns and ſtews, well ſtocked with females, that proſtituted themſelves to the mariners, merchants, and artificers of all ſorts, who flocked thither in great numbers; this, however, appears to have happened only in times of peace.

(4.) **Naval Crown**, among the ancient Romans, a crown adorned with figures of prows of ſhips, conferred on perſons who in ſea-engagements firſt boarded the enemy's veſſel. See **Crown.**

(5.) **Naval Engagement.** See **Naval Tactics**, *Part* I, *Sect.* V.

(6.) **Naval Stores**, comprehend all thoſe particulars made uſe of, not only in the royal navy, but in every other kind of navigation; as timber and iron for ſhipping, pitch, tar, hemp, cordage, ſail-cloth, gun-powder, ordnance, and fire-arms of every ſort, ſhip-chandlery wares, &c.

NAVAL TACTICS;

Or, The MILITARY OPERATIONS of FLEETS.

Definition.

1. NAVAL TACTICS is defined by the ingenious Dr **Mackay** of Aberdeen, the art of ranging fleets in ſuch order or diſpoſition, as may be judged moſt convenient, either for attacking, defending, or retreating, to the greateſt advantage; and to regulate their ſeveral movements accordingly. It is not a ſcience eſtabliſhed on principles abſolutely invariable, but founded on ſuch reaſons as the alteration and improvement of arms muſt neceſſarily occaſion in a courſe of time and experience; from which alſo naturally reſults a difference in the conſtruction of ſhips, in the manner of working them, and, in fine, in the total diſpoſition and regulation of fleets and ſquadrons.

2. We ſhall therefore curſorily run through this ſucceſſion and change of arms, &c. to the preſent improvement of our lines of battle, to ſhow the reaſons which have induced the moderns to prefer ſo advantageous a choice as they now follow in the arrangement of their ſhips; and in this we ſhall chiefly quote Dr Mackay's Treatiſe on Naval Tactics, inſerted in the *Encyc. Brit.*

History *of* Naval Tactics.

3. **The** ancient galleys were ſo conſtructed as to carry ſeveral banks of oars, very differently diſpoſed from thoſe in our modern galleys, which however, vary the leaſt of any others from the ancient model. Advanced by the force of the oars, the galleys ran violently aboard of each other, and by the mutual concuſſion of their beaks and prows, and ſometimes of their ſterns, endeavoured to daſh in pieces or ſink their enemies.

4. The **prow**, for this purpoſe, was commonly armed with a brazen point or trident, nearly as low as the ſurface of the ſea, to pierce the enemy's ſhips under the water. Some of the galleys were furniſhed with large turrets, and other buildings, either for attack or defence. The ſoldiers alſo annoyed their enemies with darts and ſlings; and on their nearer approach, with ſwords and javelins; and that their miſſive weapons might be directed with greater force and certainty, the

ſhips were equipped with ſeveral platforms, or elevations above the level of the deck. The ſides of the ſhip were fortified with a thick fence of hides, which ſerved to repel the darts of their adverſaries, and to cover their own ſoldiers, who thereby annoyed the enemy with greater ſecurity.

5. As the invention of gunpowder has rendered uſeleſs many of the machines employed in the naval wars of the ancients, the great diſtance of time has alſo conſigned many of them to oblivion: ſome few, however, are recorded in ancient authors, of which it is proper to preſent a ſhort deſcription. And firſt,

6. The Δελφιν, or *Dolphin*, was a large and maſſy piece of lead or iron, caſt in the form of a dolphin. This machine being ſuſpended by blocks at the maſt heads or yard arms, upon a proper occaſion, was let down violently into the enemy's ſhips; and either penetrated through their bottom, and opened a paſſage for the entering waters, or by its weight immediately ſunk the veſſel.

7. The Δρεπανον, or *Drepanum*, was an engine of iron crooked like a ſickle, and fixed on the top of a long pole. It was employed to cut aſunder the ſlings of the ſail-yards, and, thereby letting the ſails fall down, to diſable the veſſel from eſcaping, and incommode her greatly during the action. Similar to this was another inſtrument, armed at the head with a broad two-edged blade of iron, wherewith they uſually cut away the ropes that faſtened the rudder to the veſſel.

8. The *Dorata naumacha*, Δορατα ναυμαχα, were ſort of ſpears or maces of an extraordinary ength, ſometimes exceeding 20 cubits, as appears y the 15th Iliad of Homer, by whom they are lſo called μακρα.

9. The *Kiraiæ*, Κεραιαι, were certain machines ſed to throw large ſtones into the enemy's ſhips. VEGETIUS mentions another engine which was uſpended to the main-maſt, and reſembled a battering ram; for it conſiſted of a long beam and a ead of iron, and was with great violence puſhed gainſt the ſides of the enemy's galleys.

10. They had alſo a grappling iron, which was ſually thrown into the adverſe ſhip by means of n engine; this inſtrument facilitated the entrance f the ſoldiers appointed to board, which was one by means of wooden bridges, that were generally kept ready for this purpoſe in the fore part f the veſſel. See CORVUS, N° 1.

11. The arms uſed by the ancients rendered the iſpoſition of their fleets very different, according o the time, place, and circumſtances of the engagement. They generally conſidered it an adantage to be to windward, and to have the ſun ining directly on the front of their enemy. The rder of battle chiefly depended on their power f managing the ſhips, or of drawing them readily into form; and on the ſchemes which their officers had concerted. The fleet being compoſed f rowing veſſels, they lowered their ſails previous the action; they preſented their prows to the nemy, and advanced againſt each other by the orce of their oars. Before they joined battle, the dmirals went from ſhip to ſhip, and exhorted heir ſoldiers to behave gallantly.

12. All things being in readineſs, the ſignal was iſplayed by hanging out of the admiral's galley a gilded ſhield, or a red garment or banner. During the elevation of this, the action continued; and by its depreſſion, or inclination towards the right or left, the reſt of the ſhips were directed how to attack or retreat from their enemies. To this was added the ſound of trumpets, which began in the admiral's galley, and continued round the whole fleet. The fight was begun by the admiral's galley, by grappling, boarding, and endeavouring to overſet, ſink, or deſtroy the adverſary. Sometimes, for want of grappling irons, they fixed their oars in ſuch a manner as to hinder the enemy from retreating. If they could not manage their oars as dexterouſly as their antagoniſts, or fall along ſide ſo as to board them, they penetrated their veſſel with the brazen prow. The veſſels approached each other as well as their circumſtances would permit, and the ſoldiers were obliged to fight hand to hand till the battle was decided: nor indeed could they fight otherwiſe with any certainty, as any little diſtance rendered their ſlings and arrows, and almoſt all their offenſive weapons, ineffectual, if not uſeleſs. The ſquadrons were ſometimes ranged in two or three right lines, parallel to each other; being ſeldom drawn up in one line, unleſs when formed into an half moon, which indeed appears to have been the moſt convenient for rowing veſſels, that engaged by advancing with their prows.

13. At the battle of Ecnomus, between the Romans and the Carthaginians, the fleet of the former was ranged into a triangle, or a ſort of wedge in front, and towards the middle of its depth, of two right parallel lines. That of the latter was formed into a rectangle, or two ſides of a ſquare, of which one branch extended behind, and as the opening of the other proſecuted the attack, was ready to fall upon the flank of ſuch of the Roman galleys as ſhould attempt to break their line. Ancient hiſtory has preſerved many of theſe orders, of which ſome have been followed in later times. In a battle A. D. 1340, the Engliſh fleet was formed in two lines, the firſt of which contained the larger ſhips, the ſecond conſiſted of all the ſmaller veſſels, uſed as a reſerve to ſupport the former when neceſſary. In 1545, the French fleet under the command of the Mareſchal d'Annbault, in an engagement with the Engliſh in the channel, was arranged in the form of a creſcent. The whole of it was divided into three bodies, the centre being compoſed of 36 ſhips, and each of the wings of 30. He had alſo many galleys; but theſe fell not into the line, being deſigned to attack the enemy occaſionally. This laſt diſpoſition was continued down to the reigns of James I. and Lewis XIII.

14. In the mean time, the invention of gunpowder in 1330 gradually introduced the uſe of fire-arms into naval war, without finally ſuperſeding the ancient method of engagement. The Spaniards were armed with cannon in a ſea-fight againſt the Engliſh and the people of Poitou, on the coaſt of Rochelle in 1372; and this battle is the firſt wherein mention is made of artillery in our navies. Many years elapſed before the marine armaments were ſufficiently provided with fire-arms. So great a revolution in the manner of fighting, and which neceſſarily introduced a total

change in the conſtruction of ſhips, could not be ſuddenly effected. The ſquadrons of men of war were no longer formed of rowing veſſels, or compoſed of galleys and ſhips of the line; but entirely of the latter, which engage under ſail, and diſcharge the whole force of their artillery from their ſides. Accordingly they are now diſpoſed in no other form than that of a right line parallel to the enemy; every ſhip keeping cloſe-hauled upon a wind on the ſame tack. Indeed the difference between the force and manner of fighting of ſhips and galleys, rendered their ſervice in the ſame line incompatible. A change was therefore introduced, both in the conſtruction and working of the ſhips, by the uſe of cannon; and ſquadrons of men of war began to appear in the order that is now generally adopted.

15. The machines which owe their riſe to the invention of gun-powder have now totally ſupplanted the others; ſo that there is ſcarce any but the ſword remaining, of all the weapons uſed by the ancients. Our naval battles are therefore almoſt always decided by fire-arms, of which there are ſeveral kinds, known by the general name of ARTILLERY. In a ſhip of war, fire-arms are diſtinguiſhed into cannon mounted on carriages, ſwivel-cannon, grenadoes, and muſquetry. See CANNON, GUN, MUSKET, &c. Beſides theſe machines, there are ſeveral others uſed in merchant ſhips and privateers, as cohorns, carabines, fire-arrows, organs, ſtink-pots, &c.

16. The writers on naval tactics have been few, conſidering the importance of the ſubject. The only countries that have produced writers on this ſubject, ſo far as we know, are France and Britain, particularly the firſt. One would imagine that Britain, from its inſular ſituation, having bred ſo great a number of excellent ſeamen, and having ſo often been engaged in naval conteſts, would have produced a number of writers on this, as well as on ſubjects of much leſs conſequence to it as a nation. The reader will, however, probably be ſurpriſed, that we have only one ſcientific treatiſe on this ſubject, entitled *An Eſſay on Naval Tactics, &c.* by John Clerk, Eſq; of Elden, near Edinburgh; all the other treatiſes publiſhed in Britain on it being either tranſlations from the French, or remarks upon the French authors.

17. The reaſon of this is, that in various ſea-ports in France, there are academies eſtabliſhed for the expreſs purpoſe of educating thoſe intended for the navy in the various branches of naval ſcience; whereas, in Britain, there is only one academy eſtabliſhed at the expenſe of government, namely, the *Marine Academy at Portſmouth*; and, excepting navigation, ſcarcely any other branch of naval ſcience is taught in that ſeminary. It alſo requires great intereſt to be admitted.

18. Some of the principal French treatiſes on naval tactics are the following: 1. *L'Art des Armées Navales, ou Traité des Evolutions Navales*, par Paul l'Hoſte, 1 vol. folio, printed at Lyons 1727. This book was tranſlated and publiſhed by Chriſtopher O'Bryen, Eſq; in 4to, in 1762. 2. *Tactique Navale, ou Traité des Evolutions et des Signaux*, par M. le Viſcompte de Morogues, 4to, Paris 1763. 3. *Le Manœuvrier*, par M. Bourdé de Villehuet. 4. *L'Art de Guerre en Mer, ou Ta tique Navale*, &c. par M. le Viſcompte de Gr nier. Tranſlations of the two laſt have appear in Engliſh in 4to, in 1788, under the name of t *Chevalier de Sauſeuil*; and a tranſlation of part o the three laſt is in the 2d vol. of the Elements an Practice of Rigging and Seamanſhip, publiſhed a London in 1794. Other books on evolutions an tactics are, *Théorie de la Manœuvre des Vaiſſeaux*, Paris, 1689. *Pitot's Theory of Working Ships a plied to Practice*, &c. tranſlated by Stone, 17 *De la Manœuvre des Vaiſſeaux, ou Traité de M nique et de Dynamique, &c.* par M. Bouguer. T *Britiſh Mars*, &c. by William Flexney, 1763. A *Sea-Manual*, by Sir Alexr. Schomberg, 178 . A *View of the Naval Force of Great Britain*, &c. b an Officer of Rank, 1791, &c.

19. Great and important improvements hav been made in the ſyſtem and practice of Nav Tactics, within theſe 20 years, to which, with the naval ſkill of our admirals, and bravery of our ſe men, are in a great meaſure to be aſcribed the pre ſent ſuperiority of the Britiſh Navy to that o other nations in Europe, the ſubject requires to be divided into two parts: in the firſt of which w be given a general view of the *Late Syſtem*, part which is ſtill retained, and in the latter a partic account of the *New Syſtem* of NAVAL TACTIC

PART I.

THE LATE SYSTEM OF NAVAL TACTIC

SECT. I. *Of the* ORDERS *of* SAILING.

20. A FLEET of ſhips of war is uſually divid into three diviſions or ſquadrons, called the ce TRE, VAN, and REAR; and each ſquadron ha commanding officer. The commander in ch or ADMIRAL of the fleet, is in the centre colu the VICE ADMIRAL has the command of the va and the REAR ADMIRAL, that of the rear. Th ſhips of each ſquadron are diſtinguiſhed by th poſition of their colours.

21. The ſhips of the firſt or centre ſquadr carry their pendants at the main top-gallant ma head. The ſhips of the 2d diviſion carry th pendants at the fore top-gallant maſt head, an thoſe of the 3d diviſion at the mizen top-m head. Each ſquadron ought, if poſſible, to co ſiſt of the ſame number of ſhips; and alſo to be of the ſame force, ſo that each may be equa able to attack or repulſe the enemy; and wh in a line, the ſeveral parts will be equally ſtro When the fleet is very numerous, each ſquad is ſometimes ſubdivided in a ſimilar manner in three diviſions of *centre, van,* and *rear*.

22. When the fleet is formed in the line or o der of battle, each admiral takes his poſt in th centre of his ſquadron, the commander in ch being in the middle of the line. If the enemy i not in ſight, the ſtore-ſhips, fire-ſhips, ſloops, &c are to be to the windward of the fleet, becau they can be more eaſily ſupported, and can mo readily obey the ſignals that may be made to th There are frigates to the windward of the van an rear of the convoy, for the purpoſe of looking o for the enemy, and keeping thoſe veſſels in th

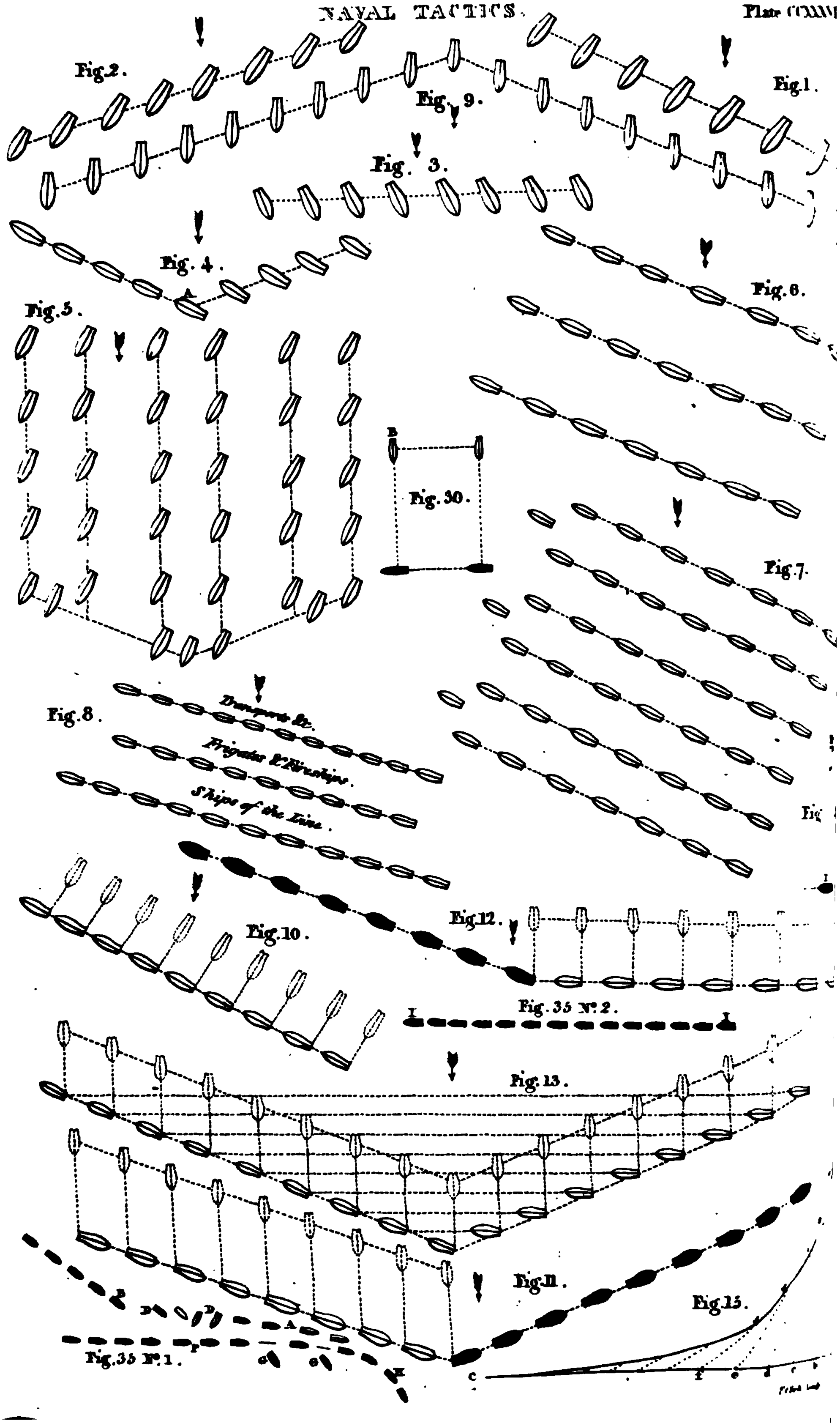


Fig. 2.
Fig. 1.
Fig. 9.
Fig. 3.
Fig. 4.
A
Fig. 6.
Fig. 5.
B
Fig. 30.
Fig. 7.
Fig. 8.
Transports &c.
Frigates & Fireships.
Ships of the Line.
Fig
Fig. 10.
Fig. 12.
Fig. 35 No. 2.
I
I
Fig. 13.
Fig. 11.
Fig. 15.
B
D
D
A
F
G
G
H
Fig. 35 No. 1.
C
f
e
d
f
b

proper ſtations. But if the enemy be in ſight, then all thoſe ſhips which are not to be in the line of battle are to be on the other ſide of the line with reſpect to the enemy. If the fleet ſail in three columns, the firſt or centre ſquadron is in the middle between the 2d or 3d ſquadron; one of which, according to circumſtances, forms the *ſtarboard* and the other the *larboard* column; and each admiral leads his reſpective diviſion. If the fleet be deſtined for a certain place at a conſiderable diſtance, it is generally formed into ſquadrons; but if cruiſing in expectation of meeting the enemy, the admiral keeps his ſhips in ſuch ſailing poſitions as may be moſt advantageous to form for action as quickly as poſſible. Theſe various poſitions or arrangements are called ORDERS; and that they may be better underſtood, it is neceſſary to premiſe the following definitions:

23. The STARBOARD line of bearing, is that line upon which the ſhips of a fleet, being ranged, bear from each other upon a cloſe-hauled line, whatever courſe they may be ſteering; and ſo that upon hauling their wind, or tacking together as may be neceſſary, the ſhips will be in a line cloſe-hauled upon the ſtarboard tack.

24. The LARBOARD line of bearing, is that line upon which the ſhips of the fleet, by hauling their wind, or tacking together, may be formed in a line cloſe-hauled on the larboard tack.

25. A fleet of ſhips is ſaid to be in the *line abreaſt*; when the ſhips keels are parallel to each other, and their main-maſts in the ſame ſtraight line.

26. The bow and quarter line is when the ſhips are ranged in a ſtraight line cutting their keels obliquely at the ſame angle: Hence at any intermediate ſhip, the ſhips towards one extremity of the line will be on the bow, and thoſe towards the other extremity will be on the quarter, of that ſhip.

27. If ſeveral ſhips ſtand on the ſame line and ſteer the ſame courſe, but different from that line, they are ſaid to be in *echiquier* or *chequerwiſe*.

28. MANOEUVRE in ſucceſſion is when a fleet, ranged in one of the orders of ſailing, and ſtanding on the ſame line, the ſame manœuvre is ſucceſſively performed by each ſhip as ſhe arrives at the wake of the van ſhip of the whole fleet, if in one line; or of the van ſhip of her particular diviſion when divided into ſquadrons. So that a fleet tacks or veers, bears away or comes to the wind in ſucceſſion, when all the ſhips of every line execute, one after another, the ſame manœuvre on the ſame point of the wake of the leading ſhip.

29. The number of ORDERS of ſailing is commonly reckoned 5; called the *firſt*, *ſecond*, *third*, *fourth*, and *fifth* orders of ſailing; beſides an order of *battle*, an order of *retreat*, &c.

30. In the firſt order of ſailing, the fleet is ranged on one of the lines of bearing, and each ſhip ſteering the ſame courſe. Thus, in *fig*. 1. *Plate* CXXXVIII. let the wind be north, and the fleet ranged on the ſtarboard line of bearing, and let the ſhips ſteer any courſe, as SW.; in this caſe, the fleet is ready to form the line on the ſtarboard tack, by hauling the wind. Again, let the fleet be ranged on the larboard line of bearing, and ſteering the ſame courſe as before, as in *fig*. 2.; then the fleet is in a poſition ready to form the line on the larboard tack, by tacking.

31. In a numerous fleet this method of ſailing is defective; as the fleet will be too much extended, and therefore the communication between the van and the rear rendered more difficult than when in a more connected order. It is of uſe, however, when the enemy is in ſight, as then the fleet may be readily formed in order of battle; and in that caſe only, or in paſſing through a ſtrait, will it be neceſſary to range the fleet in this order.

32. In the 2d order of ſailing, the fleet is ranged on a line perpendicular to the direction of the wind, and ſteering any proper courſe. This order, which is repreſented in *fig*. 3. has the ſame defects as the former; and has alſo this diſadvantage, that the fleet cannot ſafely tack in ſucceſſion from this order, as each ſhip at the time of tacking is in danger of falling on board the ſhip next aſtern; and, therefore, if the line is cloſe, the ſhip aſtern muſt bear up conſiderably, in order to avoid being on board the ſhip a-head, which at that time is in ſtays.

33. The 3d order of ſailing is that in which the whole fleet is cloſe-hauled, ranged upon the two lines or lines of bearing, and therefore containing an angle of 12 points; the admiral's ſhip being at the angular point, and the whole fleet ſteering the ſame courſe. Thus, in *fig*. 4. the wind being ſuppoſed north, and the fleet cloſe-hauled on the ſtarboard tack; then A bearing the admiral's ſhip, one part of the fleet bears from him WNW. and the other part ENE. This order of ſailing is no doubt preferable to either of the former, as the ſhips are more collected, and can more diſtinctly perceive and obey the ſignals; but if the fleet is numerous, it will be too much extended.

34. In the 4th order of ſailing, the fleet is divided into ſix or more columns, as may be judged neceſſary: by which means the fleet is much more connected than in any of the former orders. The commanders, ranged upon the two lines of bearing, have their ſquadrons aſtern of them upon two lines to the direction of the wind; the firſt ſhips of each column being, with reſpect to the commander of their ſquadron, the one on his ſtarboard and the other on his larboard quarter. The diſtance between the columns ſhould, however, be ſuch, that the fleet may readily reduce itſelf to the 3d order of ſailing, and from that to the order of battle. This order is adapted for fleets or convoys croſſing the ocean, and is repreſented in *fig*. 5. But as it requires much time to reduce a fleet from this order to that of battle, it is therefore defective when in preſence of an enemy.

35. The 5th and laſt order of ſailing is that in which the fleet is divided into three columns cloſe-hauled, and therefore parallel to each other; and alſo the reſpective ſhips abreaſt of each other. The van commonly forms the weather column; the centre diviſion the middle column; and the rear diviſion the lee column. Circumſtances may, however, require the van to be the lee column, and the rear the weather column. If the fleet is very numerous, each diviſion may be divided into two columns; and each admiral is to place himſelf at a little diſtance before, and in the di-

rection of the middle of his diviſion. *Fig*, 6. and 7. repreſent this order.

36. The diſtance between any ſhip and that adjacent to it in the ſame column, and alſo the interval between the columns, are regulated by the commander in chief according to circumſtances. The interval or perpendicular diſtance between the columns is commonly taken; ſuch as, that the angle contained between the line of the columns and an imaginary line joining one of the extreme ſhips of that column, and the ſhip at the other extremity of the adjacent column, may be about two points. The meaſure of this angle muſt however depend in part upon the length of the column; and when it is determined upon, the diſtance between the columns may be found by multiplying the length of one of the columns by the tangent of the above angle to the radius unity: whence, if that angle by taken equal to two points, the length of a column multiplied by the decimal ·414 will give the diſtance between the columns. Thus let a column contain ſix ſhips; let the diſtance between each be 100 fathoms; and the length of each ſhip from the extremity of the bowſprit to the ſtern 46 fathoms; then the whole length of the column will be 776 fathoms. Now the above angle being taken equal to two points, the diſtance between the columns is equal to $776 \times {\cdot}414 = 321\frac{1}{4}$ fathoms.

37. The ORDER *of* BATTLE is formed by drawing up the ſhips of the fleet in a line nearly cloſe-hauled, and under an eaſy ſail; each ſhip being at a certain aſſigned diſtance from that next ahead, as a half or a whole cable's length. The fire-ſhips, with frigates ahead and aſtern, form a line parallel to the former, and, to the windward of it, if the enemy is to the leeward; but to the leeward, if the enemy is to the windward. Without this line another is formed, parallel thereto, of the ſtore-ſhips, &c. with frigates ahead and aſtern. *Fig*. 8. repreſents the order of battle, the fleet being on the ſtarboard tack.

38. In RETREATING from a ſuperior force, it is neceſſary to draw up the fleet in ſuch an order that it may, with the greateſt advantage, oppoſe or annoy the faſt ſailing veſſels of the enemy; for this purpoſe, the order of retreat commonly taken is that which is the inverſe of the third order of ſailing. As the fleet generally runs before the wind, the ſhips of the line are therefore ranged on the two lines of bearing; hence theſe lines contain an angle equal to 135 degrees. The admiral is at the angular point, and the frigates, tranſports, &c. are included within the wings to leeward. In place of running before the wind, the fleet may take any other proper direction; but ſtill the angle contained by the wings is to be 135°. This order of retreat is repreſented in *fig*. 9.

39. The order of CONVOY is that in which the ſhips are all in the wake of one another, ſteering on the ſame point of the compaſs, and forming a right line. If the fleet is numerous, it may be divided into three columns, which are to be ranged parallel to each other, that of the admiral occupying the middle, and all ſteering the ſame courſe.

40. To get a fleet *under way*, the lee column is to get under way firſt, and bring to all at the ſame time, juſt as they find themſelves after caſting. The centre column is then to perform the ſame manœuvre, and caſt likewiſe as ſoon as the other column is brought to; and both columns will remain in that poſition till the weather column, which is ſtill apeak, having weighed, ſhall be alſo under way. The three columns may often be got under way all at once: but to execute this the fleet muſt all act together, and with equal ardour; for the weather ſhips muſt not, at any rate, be under way before the lee ones. If it be neceſſary to get immediately in order of battle, the weather columns are at once to bear away two points together, that they may take their poſts in the line of battle ahead of the lee column.

41. If the fleet be *moored in a line*, head to wind, the rear ſhip may get under way firſt, and haul immediately by the wind; the others in ſucceſſion, from the rear to the van, can eaſily take their ſtation in her wake, ſo that the rear ſhip will now become the leader. Or, the fleet may all get under way at the ſame time; but the van ſhip is to bring to, while the reſt, caſting the other way, would ſtand on by the wind on the ſame tack on which they have caſt, and come to tack ſucceſſively in her wake, to form the order of battle.

42. To *bring a fleet to an anchor*, it ought, if conſiderable, to anchor in three parallel lines, on one of the lines of bearing, and at the proper diſtance which the length of the columns require; the diſtance between the adjacent ſhips in the ſame column being about a cable's length. The van and rear of the columns are to correſpond with each other exactly in the direction of the wind, that they may with eaſe get under way, and form the order of battle with facility, ſo as to be able to diſpute the weather-gage with the enemy if he ſhould come in ſight. And as this evolution is to be performed in moderate weather, the fleet being in three columns, they are all at the ſame time to bring their ſhip's head to the wind under their topſails, and let go their anchors together, clewing up their topſails with all poſſible diſpatch; putting the foot of the ſails in the tops, and looſening the ſheets before hauling them down; then veering away an equal quantity of cable to preſerve the aſſigned diſtance. When it blows ſo freſh as to require the topſails being reefed, two cables length may be kept between the ſhips, and even three if it be likely to blow hard.

43. If the fleet do not exceed 20 ſhips, they may anchor on one of the lines of bearing; or parallel to the coaſt, in places where trade winds are common, provided they blow in the direction of the land; for, in all caſes, they muſt be in a condition to get under way at the firſt ſight of the enemy, whoſe approach is never to be waited for at anchor; becauſe, if it be dangerous for a ſingle ſhip, it muſt be ſtill more ſo for a fleet, the movements of which are interrupted by the difficulty there is in getting with celerity under way ſhips which are moored, and which, in that caſe, are not able mutually to ſupport one another, as is abſolutely requiſite in a fleet.

ɪECT. II. *Of the* MANNER *of* FORMING *the ſeveral* ORDERS *of* SAILING.

44. THE firſt order of ſailing is formed thus: ıs the fleet is ſuppoſed to be in no particular order, that ſhip which is to lead on the propoſed ne of bearing on which the fleet is to ſail, runs ȷ the leeward of the whole or greater part of the leet, and then hauls her wind, carrying an eaſy ıil: each ſhip then endeavours to get into her roper ſtation, by chaſing the ſhip which is to be ext ahead of her; and when in the wake of the ader, muſt take care to preſerve the aſſigned iſtance from the ſhip immediately ahead, by inreaſing or diminiſhing the quantity of ſail: and any of the fleet ſhould happen to be ſo far reıoved from her ſecond ahead as not to be able to haſe her without getting out of her way towards he line, in that caſe ſhe muſt take her ſtation diſretionally in a line with the leaders, and leave a roper interval. The fleet will now be formed ı the line of battle; from which the firſt order f ſailing is formed by each ſhip bearing away at he ſame inſtant, and ſteering each the ſame prooſed courſe.

45. To form the 2d order of ſailing, the leader ıns to the leeward of the whole, or of ſo many f the fleet as that each ſhip may eaſily fetch his ake, and then ſteers a courſe 8 points from the ind, carrying an eaſy ſail. Each ſhip now gets ıto her proper ſtation, by chaſing that which is ȷ be ahead of her; and when the whole fleet is ormed in a line, which will be perpendicular to ıe direction of the wind, each ſhip bears away t the ſame inſtant, and the whole ſteer the ſame ıtended courſe.

46. In the 3d order of ſailing the admiral is in ıe middle of his fleet. Now, the fleet being ormed in a line, on one of the lines of bearing, ı above directed, and the ſhips ſteering in the akes of each other, or ten points from the wind, ıe leading or leewardmoſt ſhip firſt hauls her ind; the 2d ſhip, as ſoon as ſhe is in the wake f the leader, hauls her wind alſo; and in like ıanner each ſhip, until the admirals ſucceſſively aul their wind, as ſoon as they have reached the ake of the leading ſhip; and at the ſame inſtant ıat the admiral's ſhip hauls her wind, the other, r ſternmoſt half of the fleet, do the ſame. The eet will then be in the 3d order of ſailing, as reреſented in *fig.* 4. From this order the fleet can e expeditiouſly formed into the line of battle on ıther tack.

47. As the fleet, in the 4th order of ſailing, is ivided into ſix columns, and the three commanders ranged on the two lines of bearing, the comıander in chief being at the angular point; thereore, to form this order, the admirals range themelves on the two lines of bearing, at a proper diſance from each other, and ſteer the proper ourſe; the ſhips of the ſeveral columns come ach into its reſpective place, forming themſelves ıto lines in the direction of the wind, and paallel to each other, as in *fig.* 5.

48. To form the 5th order of ſailing, the three eading ſhips of the diviſions are to take their poſts breaſt, and to leeward of each other, keeping heir wind under an eaſy ſail. Then the ſhips of each ſquadron, making ſail, will range themſelves in their reſpective ſtations, aſtern of their leaders; and keeping the ſame courſe; each ſhip preſerving the appointed diſtances from that next ahead; and the commanders of each diviſion, and each 2d, 3d, &c. ſhip, are to keep themſelves mutually abreaſt of each other.

49. To form the order of battle, the ſhip which is to lead runs to the leeward of the whole, and then hauls her wind upon the tack directed, carrying an eaſy ſail. Each ſhip then makes ſail according to her diſtance, and chaſes the ſhip which is to be immediately ahead of her in the line, and hauls in her wake in the line on which the van ſhip is moving.

50. The admiral, or ſhip appointed to make the angular point, runs to the leeward of the fleet, and brings to: then each ſhip runs to its reſpective ſtation in one of the lines of bearing, and brings to; one half of the fleet being on one of the lines of bearing, aſtern and in the wake of the admiral, and the other half on the other line of bearing, on the ſtarboard or larboard bow of the admiral. When this is accompliſhed, the whole fleet bears away before the wind: the two wings will now bear from the admiral two points before his beam, and ready to form the line of battle upon either tack; the ſhips on the admiral's ſtarboard bow being in the line of bearing for the larboard tack, and thoſe on his larboard bow in the line of bearing for the ſtarboard tack.

SECT. III. *Of* CHANGING *from the ſeveral* ORDERS *of* SAILING *to the* LINE *of* BATTLE.

51. To form the line from the firſt order of ſailing: If the ſhips be running large on the tack anſwering to the line of bearing on which they are ſailing, and the line to be formed on the ſame tack, all the ſhips haul the wind at the ſame time, or at leaſt each ſhip hauls her wind immediately after the next to windward: but if the fleet be on the other tack with reſpect to the line of bearing, all the ſhips haul their wind and tack together, or all veer together according to circumſtances. If the line of battle is to be formed on the other line of bearing, the leewardmoſt ſhip either veers or tacks, and hauls her wind: the reſt of the fleet veer or tack at the ſame time, and ſteer with the wind four points free; and each ſhip ſucceſſively, as ſoon as ſhe gets into the wake of the leader, hauls her wind. Hence the line of battle will be formed from the firſt order of ſailing. See *figs.* 10. and 11. *plate* 238.

52. To form the line from the 2d order of ſailing, the fleet running large or before the wind: All the ſhips of the fleet haul up together on the tack directed, preſenting their heads on the line upon which they are ranged, or 8 points from the wind. The leading ſhip then hauls her wind, and is followed in ſucceſſion by the reſt. That the ſhips may not be too near each other, they make ſail as they haul their wind, or their ſeconds ſhorten ſail to open the order. See *fig.* 12.

53. To change from the 3d order of ſailing to the line of battle: The ſhips being ſuppoſed going large, that wing which is in the line of bearing for the tack on which the line is to be formed, and the ſhip at the angular point, haul their

wind at the ſame time; the ſhips of the other wing haul up together 8 points from the wind; then each ſhip moves in this direction until ſhe reaches the wake of the other wing, where ſhe hauls cloſe up. See *fig.* 13.

54. To form the line of battle on the ſame tack, from the fifth order of ſailing. Let the weather column form the van, and the lee column the rear. The centre brings to, or only keeps ſteerage-way; the weather column bears away two points, and hauls its wind as ſoon as it is ahead of the centre; the lee column tacks together, and runs under a preſs of ſail, to gain the wake of the centre, when it retacks together and completes the line. (See *Plate* CCXXXIX. *fig.* 14.). This evolution may alſo be performed as follows: The weather column brings to; the centre and lee columns tack together, and go away two points free; when the centre column has gained the wake of the van, it retacks together, and brings to; and when the lee column has gained the rear line, it retacks together, and then all ſtand on: otherwiſe the lee column brings to; the centre goes under an eaſy ſail two points free, to get ahead of the rear ſquadron; while the van carries a preſs of ſail, alſo two points free, to get ahead of the centre diviſions.

55. Hitherto the weather column has uniformly been ſuppoſed to form the van, and the lee column the rear diviſion: the line may, however, be formed by interchanging theſe columns in a variety of different ways; but which we do not think it neceſſary to deſcribe, now that Mr Clerk's new ſyſtem of naval tactics has rendered theſe manœuvres almoſt obſolete.

Sect. IV. *Of the* Line *of* Battle.

56. In a naval engagement the mode is to draw up the fleet in a ſtraight line upon one of the cloſe-hauled lines, under an eaſy ſail. The frigates, fire ſhips, tranſports, &c. are placed at proper diſtances on the other ſide, with reſpect to the enemy. The diſtance between two adjacent ſhips in the line is uſually about a cable's length; but the admiral increaſes or diminiſhes this interval according to circumſtances. The nearer, however, the ſhips are to each other, the ſtronger is the line, and the more difficult to be broken or forced by the enemy; but ſtill there muſt be a ſufficient interval left, ſo that if a ſhip receive conſiderable damage, ſhe may be got out of the line without becoming foul or falling aboard of the ſhip next aſtern, which would be the means of putting the whole line in confuſion.

57. The ſtrength of a fleet depends alſo more on the largeneſs of the ſhips, and the weight of the metal, than on their number. The fewer the number of ſhips in a fleet, the more diſtinctly will the ſignals be perceived and anſwered by thoſe near the extremities of the line: the better alſo will the order of battle be kept, and the fleet more eaſily manœuvred. A large ſhip is not ſo ſoon diſabled as a ſmall one; and in the caſe of a three-decker, although the upper deck ſhould happen to be confuſed with the wreck of broken maſts, yards, &c. and hence it being ſcarcely poſſible to work the guns on that deck, yet if the weather be not tempeſtuous, the guns on the other two decks may be worked. If boarding ſhould be deemed practicable, it is evident that the large ſhip, upon account of the height of her ſide, as well as for other reaſons, will have greatly the advantage over one of a leſs ſize. Large ſhips are alſo for the moſt part more able to encounter a ſtorm than ſmall ones; and in a gale of wind large ſhips have commonly the advantage in point of ſailing. Hence a fleet compoſed of large ſhips has greatly the advantage over a fleet conſiſting of leſs ſhips, though much more numerous.

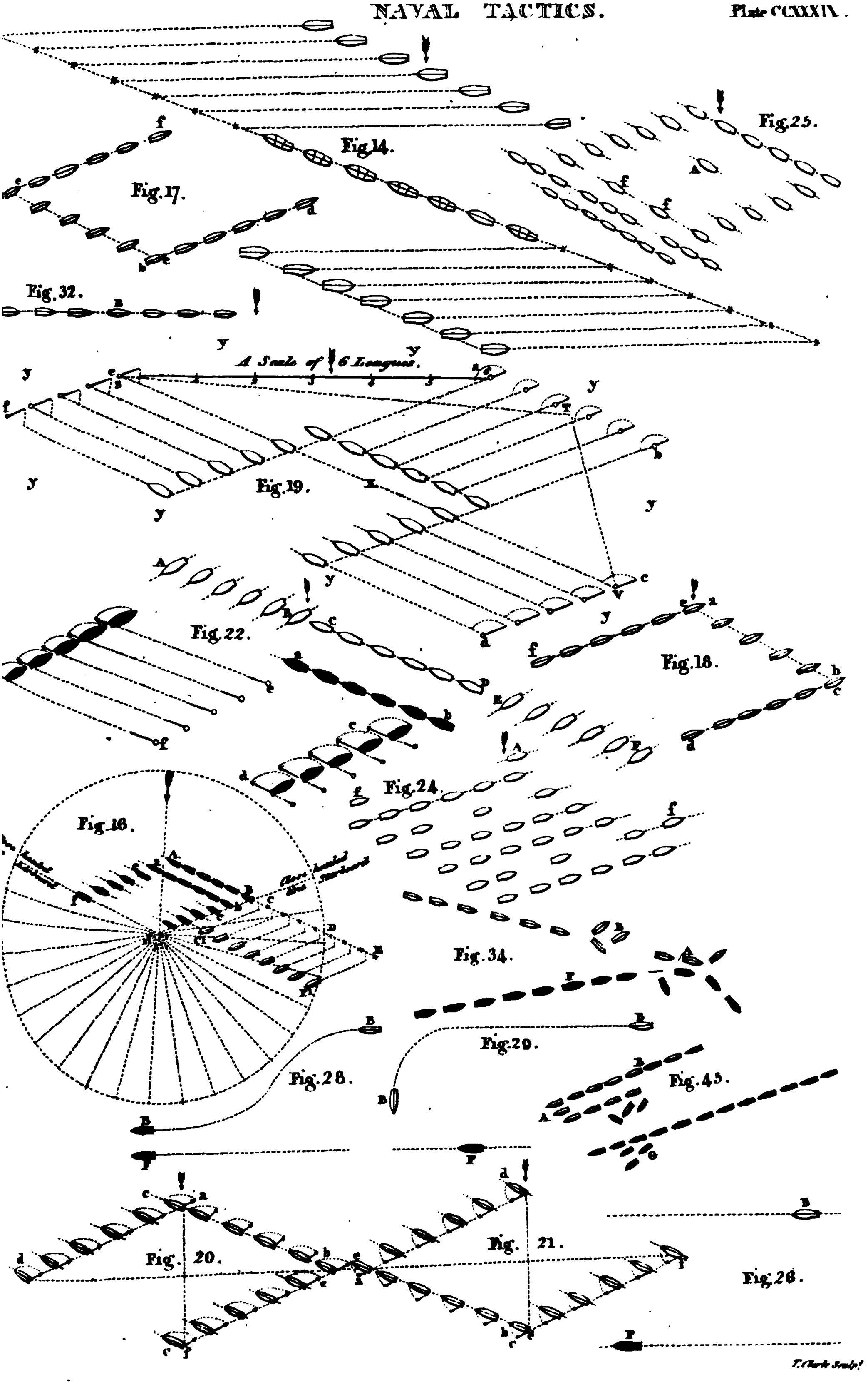
58. As in a naval engagement the two fleets are drawn up cloſe-hauled, on two lines parallel to each other, one of theſe fleets is therefore to the windward of the other. The windward fleet has ſeveral advantages not poſſeſſed by the fleet to leeward, and the leeward fleet has alſo advantages over the weather fleet. The advantages and diſadvantages of each of theſe fleets are as follows:

59. The fleet to windward may approach the leeward fleet at pleaſure, and can therefore determine the time of commencement of the action. If the weather fleet is more numerous, it may ſend down a detachment of ſhips on the rear of the leeward fleet, and thereby put it into confuſion. If any of the ſhips of the fleet to leeward ſhould be diſabled, the fleet to windward may with great eaſe ſend down their fire-ſhips upon them, or ſend a detachment after any part that gives way. The weather fleet may board if the admiral thinks proper; and it is ſcarcely incommoded with the ſmoke, which is carried off by the wind to the fleet to leeward.

60. The diſadvantages of the fleet to windward are, an inability to quit the fight when once engaged, without being obliged to paſs through the enemy's line, which is extremely dangerous; becauſe the ſhips being already very much injured before they are obliged to fly, they muſt expect to be ſtill more ſo; and as they have it no longer in their power to form the order of retreat, this manœuvre is abſolutely a deſperate one. If the fleet to windward tack altogether, in order to get off, the line to the leeward may do the ſame, after having raked the weather ſhips in ſtays, and follow them on the other tack, with the advantage of having gained the wind of the centre and rear diviſions of the flying line. If it blows freſh, it is ſeldom that weather ſhips have their lower gun decks ſufficiently elevated; whence it reſults, that the ſhip being a little inclined on the lee ſide, the guns often run out again at their ports after being fired, which very much retards the ſervice of the artillery, ſince the guns are obliged to be bowſed in again every time for loading; and oftentimes they can make no uſe at all of their lower tier. Again, ſuch of the ſhips as are ſo diſabled as to be obliged to quit the line, cannot eaſily do it, becauſe in veering, for want of being able to tack, they fall between the two lines, where they are raked ahead, and thus completely put in diſorder; but ſhould they be able to finiſh their evolution, it is ſtill very difficult for them, diſabled as they are, to get to windward of their line, and very often they fall foul of the next ſhips aſtern of them, which have it ſcarcely in their power to prevent the accident, on account of the

NAVAL TACTICS.

Plate CCXXXIX.



fire and ſmoke, eſpecially if the line is much contracted; and ſhould theſe perceive it, and try to avoid being run foul of by filling back on their next ſhip aſtern, and ſo on thus ſucceſſively, it might happen, that from one to the other a great part of the fleet being obliged to manœuvre, their fire would leſſen, and very often ceaſe, by their covering each other; when, if the enemy take the advantage of this critical moment, the diſorder increaſes, and all is loſt. But theſe inconveniencies may be partly prevented by having the diſabled ſhips quickly towed out of the line by the boats of the fleet, which for that purpoſe ſhould always be hoiſted out from each ſhip before the engagement begins. Otherwiſe, if the ſhips in the weather line, not being too cloſe, have the neceſſary ſpace to obſerve what paſſes ahead of them, and to manœuvre, they ought to range themſelves to leeward of the diſabled ſhip, in order to cover her, and approach nearer to the enemy; all the other ſhips bearing up alſo together to preſerve the line.

61, The ſhips in the line to leeward have the advantage of ſerving with facility and effect their lower deck guns, in all weathers, proper for fleets to come to action: they can quit the engagement at pleaſure; their diſabled ſhips can without difficulty quit their ſtations when neceſſity requires it: they can form the order of retreat with more readineſs, or continue the action as long as convenient: in ſhort, the lee line of battle, if ſuperior in number, can alſo double the enemy, by making ſome of the ſhips in the van or rear to tack, and put one of the extremities of the enemy's line between two fires; and if they are formed in time, they may cannonade the enemy while bearing down to the attack.

62. The diſadvantages of the fleet to leeward are, its being very much annoyed by the ſmoke, and a continued ſhower of fire from the wads falling on board, repelled by the wind, which if not attended to may be productive of dreadful conſequences. The ſhips of the line to leeward cannot attempt to board thoſe of the other, whatever may be their inclination for it; they can hardly do more than accept the battle, without being able to determine either time or diſtance; it is even with great difficulty that they can avoid being boarded, or prevent their line from being broken, if the weather ſhips are bent upon doing it; and their fire-ſhips are very ſeldom of uſe. A general rule for the adoption of either the weather or lee gage cannot be laid down. Sometimes the one is preferable, and ſometimes the other; and very often the commander in chief has it not in his power to make an option.

SECT. V. *Of the* BATTLE *or* NAVAL ENGAGEMENT.

63. THE engagement will not begin till the admiral makes the ſignal, unleſs an action is inſenſibly brought on by ſome unavoidable circumſtances in the line, or poſition of the van or rear of both fleets in forming or approaching each other. The admiral in ſuch caſe will make the proper ſignal for the van or rear, by the diſtinguiſhing flag of either of theſe diviſions, which will undoubtedly regulate the neceſſary manœuvres of the reſt of the fleet throughout the whole line.

64. During the time of an engagement the greateſt ſilence is to be obſerved in each ſhip; no one muſt quit his poſt upon pain of death; and ſhould any one happen to refuſe obeying an officer, or hide himſelf, or feign to be wounded, he ſhall be put to death on the ſpot. The wounded muſt be carried or conducted to the ſurgeon by thoſe who have been appointed by the captain for that purpoſe. Should any one diſcover an advantage to be taken, he ſhall inform the officer who ſtands neareſt him. No kind of rigging whatever is to be touched without an order. Should any dangerous ſhot be received at the water line of the ſhip, ſuch of the calkers, or carpenters, or any other perſon who perceives it, ſhall inform in private the captain of it, without ſaying a word of the ſame to any one elſe, upon pain of death, unleſs it be a ſuperior officer; the ſame precaution ſhall alſo be obſerved about any part of the ſhip catching fire.

65. Whilſt the fleets are engaged, the admiral carries but little ſail: in this, however, he muſt conduct himſelf by the motions of the enemy, the ſhips always obſerving to keep cloſe in the line; and if any ſhip happen to get out of the line, the ſhip which immediately follows is to pay no regard to her, but endeavour to keep her ſtation in the line.

66. A captain muſt not quit his poſt in the line upon any pretence whatever, unleſs his ſhip ſhould be ſo greatly damaged as to render her incapable of continuing the action. The little ſail a fleet is under at ſuch a time may in general give the ſhips, though damaged in their rigging, &c. time enough to repair their defects, without cauſing an unneceſſary interruption in the line, by withdrawing out of action when their ſervice might perhaps be of the utmoſt importance to the reſt of the fleet. A captain, through too impetuous a deſire to diſtinguiſh himſelf, ought never to break the order of the line, however inviting the advantage of an attack might then appear to him to ſecure ſucceſs: he muſt wait the ſignal of the admiral or commanding officer of his diviſion, becauſe it is always more eſſential to preſerve and ſupport a cloſe line in action, as it conſtitutes the principal ſtrength of a fleet in general, than to attend to a particular attack between two ſhips, which commonly decides but little with regard to the whole, however glorious in appearance, unleſs with a view, at the ſame time of taking or deſtroying a flag ſhip of the enemy's, and where ſucceſs alone, even then, can juſtify the attempt.

67. The two immediate ſeconds to the admiral ought to direct part of their fire againſt the enemy's flag-ſhip, or any other that may attack their admiral; ſo that their chief attention ſhould be employed more in his defence than in that of their own proper ſhip, as they muſt ſacrifice every other conſideration to the honour of their flag. The ſame attention muſt likewiſe be paid to any other ſhip that may be engaged with one of the enemy's flag-ſhips; the next to her ahead and aſtern ſhould ſerve in that reſpect as ſeconds, by dividing part of their fire againſt ſuch flag-officer, in order to make him ſtrike the ſooner.

68. If any flag-officer ſtand in need of being aſſiſted, he will of courſe make a ſignal for the corps de reſerve; or if there ſhould be none, he will ſignify the ſame to his diviſion; on which his two ſeconds, with thoſe neareſt him, will cloſe in to cover him, and continue the action. The frigates of his ſquadron will likewiſe be ready to give him the neceſſary aſſiſtance; and if he ſhould ſtill continue the attack, he will in a particular manner be ſupported by his whole diviſion. Thoſe ſhips which are moſt expoſed to danger will make the ordinary ſignals upon the occaſion, if they ſhould receive any hurt or damage, in order to be ſupported by ſuch of the line as are neareſt to them.

69. When a fleet is ſo far ſuperior in number, as to be able to extend itſelf both ahead and aſtern conſiderably beyond the enemy's line, the admiral generally forms the exceſs into a body of reſerve, drawn up in a line on the other ſide of the fleet with reſpect to the enemy. If the body of reſerve is to windward, the ſhips compoſing it are to be drawn up in a line with the frigates neareſt abreaſt of the centre; but if to leeward, a little ahead of them; being careful at the ſame time to keep within reach of obſerving diſtinctly all the ſignals and motions of the fleet, and to be ready to replace ſuch of the ſhips as may happen to be diſmaſted or driven out of the line, where all intervals muſt be properly ſtrengthened, and carefully filled up again without loſs of time. The body of reſerve is uſually formed at the ſame time with the line, to prevent any irregularity that may happen on leaving any intervals or openings; yet the admiral may draw ſhips out of the line to form a body of reſerve, according to the time and circumſtances of his ſituation.

70. The oldeſt captain, after the ſenior officer who commands the body of reſerve, ought to relieve the firſt, or cloſe that part of the line which the diſabled ſhip has been obliged to quit; and ſo on ſucceſſively of the reſt.

71. The commanding officer of the body of reſerve will not be detached with the whole corps, unleſs on ſome preſſing occaſion, to fortify the line, where ſuch reinforcement is abſolutely neceſſary. If to defend one of the flag-officers of the three ſquadrons, he will be followed by the next ſenior officer of the reſerve who was not before detached, in order to place themſelves as ſeconds, the firſt ahead and the other aſtern of the flag they are to ſupport, without any diminution of the honour of his own proper ſeconds at the ſame time, as they are only called in through neceſſity on that emergency, being not engaged before, and conſequently better able to aſſiſt and ſupport the admiral; their duty being likewiſe to exert their utmoſt efforts in attacking, or, if poſſible, in boarding, the enemy's flag ſhip, to force him to yield, except they are particularly ordered off to ſome other quarter or part of the line.

72. The admiral will ſometimes order the whole body of reſerve to reinforce one of the three ſquadrons of the fleet, as he may ſee occaſion; which when he does, the body muſt make all the ſail it can, that each ſhip may place herſelf ſucceſſively, the firſt in the firſt interval, the ſecond in the ſecond interval, and ſo on throughout. If a part only of the body of reſerve is wanted, the proper ſignal will be made accordingly. When the admiral has no further occaſion for the body of reſerve, he will make the proper ſignal for the ſhips compoſing it to reſume their reſpective poſts in the line, and theſe ſhips will repeat the ſignals.

73. If any captain in the fleet think he can board with ſucceſs one of the enemy's ſhips, he will ſignify the ſame to the admiral by hoiſting the boarding flag, together with his particular pendant, to be more plainly diſtinguiſhed: the admiral in return will make the proper ſignal of approbation, or otherwiſe, if he diſapprove of the attempt, by letting fly that ſhip's particular pendant that ſhe may obſerve the ſignal the better. Before the captain make the ſignal, he ought to conſider well the ill conſequences that might attend ſuch an enterpriſe if he ſhould fail of ſucceſs; for the breaking of the order or diſpoſition of the line, by quitting his poſt, may be of much greater diſadvantage to the whole, than any advantage ariſing from his victory, except that over a flag-ſhip.

74. When the admiral makes the ſignal for his fleet to prepare for action, the fire-ſhips will at the ſame time get ready their grappling irons, fire engines, &c. for boarding, and will likewiſe diſpoſe all their combuſtibles into their proper channels of communication, &c. as ſoon as poſſible after the action begins: all which, when ready, they will take care to make known by ſignal to the particular diviſion or ſquadron they belong to, and they of courſe will repeat the ſame to the admirals.

75. The fire ſhips muſt be particularly careful in placing themſelves out of the reach of the enemy's guns; which they may do abreaſt and under ſhelter of their own ſhips in the line, and not in the openings between the ſhips, unleſs to prevent any of the enemy's ſhips that ſhould attempt to force through their line, when they muſt in ſuch caſes uſe their utmoſt efforts to prevent them. They ought always to be very attentive to the admiral's ſignals, as well as thoſe of the commanding officer of the particular ſquadron they belong to, that they may loſe no time when the ſignal is made for them to act, which they muſt quickly anſwer by a ſignal in return.

76. Although no ſhip in the line ſhould be particularly appointed to lead down or protect the fire ſhips, beſides the frigates already ordered for that particular purpoſe; yet the ſhip ahead of which the fire ſhip paſſes in her way to the enemy, whatever diviſion ſhe may belong to, is to eſcort her, and muſt aſſiſt her with a boat well manned and armed, as well as any other ſuccour ſhe may ſtand in need of: The two next ſhips to her muſt likewiſe give her all neceſſary aſſiſtance. The captain of a fire ſhip is to conſider, in ſhort, that he is anſwerable for the event, in proportion as he expects to be honourably rewarded if he ſucceed in ſo daring and hazardous an enterpriſe.

77. A general engagement of fleets or ſquadrons of men of war is nothing elſe than a variety of particular actions of ſingle ſhips with each other.

The whole economy of a naval engagement may be arranged under the following heads; namely, the *preparation*, the *action*, and the *repair* or *refitting* for the purpoſes of navigation.

78. The PREPARATION is begun by iſſuing the orders to clear the ſhip for action, which is repeated by the boatſwain and his mates at all the hatchways or ſtaircaſes leading to the different batteries. As the management of the artillery, in a veſſel of war, requires a conſiderable number of men, it is evident that the officers and ſailors muſt be reſtrained to a narrow ſpace in their uſual habitations, in order to preſerve the internal regularity of the ſhip. Hence the hammocks of the atter are crowded together as cloſe as poſſible between the decks, each of them being limited to the breadth of 14 inches. They are hung parallel to each other, in rows ſtretching from one ſide of the ſhip to the other, nearly throughout her whole length, ſo as to admit of no paſſage but by ſtooping under them. As the cannon therefore cannot be worked while the hammocks are ſuſpended in this ſituation, it becomes neceſſary to remove them as quickly as poſſible. By this circumſtance a double advantage is obtained; the batteries of cannon are immediately cleared of an incumbrance, and the hammocks are converted into a ſort of parapet, to prevent the execution of ſmall hot on the quarter-deck, tops, and forecaſtle. At the ſummons of the boatſwain, *Up all hammocks*, every ſailor repairs to his own, and, having ſtowed his bedding properly, he cords it up firmly with a aſhing or line provided for that purpoſe. He then carries it to the quarter-deck, poop, or forecaſtle, or wherever it may be neceſſary. As each ſide of he quarter-deck and poop is furniſhed with a double net-work, ſupported by iron cranes fixed mmediately above the gunnel or top of the ſhip's ide, the hammocks thus corded are firmly ſtowed by the quarter-maſter between the two parts of he netting, ſo as to form an excellent barrier. The ops, waiſte, and forecaſtle are then fenced in the ame manner.

79. Whilſt theſe offices are performed below, the boatſwain and his mates are employed in ſecuring he ſailyards, to prevent them from tumbling down when the ſhip is cannonaded, as ſhe might thereby be diſabled, and rendered incapable of attack, reeat, or purſuit. The yards are now likewiſe ſecured by ſtrong chains or ropes, additional to hoſe by which they are uſually ſuſpended. The boatſwain alſo provides the neceſſary materials to epair the rigging, wherever it may be damaged by the ſhot of the enemy, and to ſupply whatever parts of it may be entirely deſtroyed. The carpenter and his mates, in the mean time, prepare hot-plugs and mauls, to cloſe up any dangerous breaches that may be made near the ſurface of the water; and provide the iron-work neceſſary to efit the chain pumps, in caſe their machinery hould be wounded in the engagement. The gunner, with his mates and quarter-gunners, is buſied in examining the cannon of the different batteries, to ee that their charges are thoroughly dry and fit for execution; to have every thing ready for furniſhing he great guns and ſmall arms with powder as ſoon as the action begins; and to keep a ſufficient number of cartridges continually filled, to ſupply the place of thoſe expended in battle. The maſter and his mates are attentive to have the ſails properly trimmed according to the ſituation of the ſhip; and to reduce or multiply them, as occaſion requires, with all poſſible expedition. The lieutenants viſit the different decks, to ſee that they are effectually cleared of all encumbrances, ſo that nothing may retard the execution of the artillery; and to enjoin the other officers to diligence and alertneſs in making the neceſſary diſpoſitions for the expected engagement, ſo that every thing may be in readineſs at a moment's warning.

80. When the hoſtile ſhips have approached each other to a competent nearneſs, the drums beat to arms: The boatſwain and his mates pipe, *All hands to quarters!* at every hatchway; all the perſons appointed to manage the great guns immediately repair to their reſpective ſtations; the crows, handſpikes, rammers, ſpunges, powder-horns, matches, and train tackles, are placed in order by the ſide of every cannon; the hatches are immediately laid, to prevent any one from deſerting his poſt by eſcaping into the lower apartments; the marines are drawn up in rank and file on the quarter-deck, poop, and forecaſtle; the laſhings of the great guns are caſt looſe, and the tompions withdrawn; the whole artillery, above and below, is run out at the ports, and levelled to the point blank range, ready for firing. The neceſſary preparations being completed, and the officers and crew ready at their reſpective ſtations to obey the order, the commencement of the action is determined by the mutual diſtance and ſituation of the adverſe ſhips, or by the ſignal from the commander-in-chief of the fleet or ſquadron. The cannon being levelled in parallel rows projecting from the ſhip's ſide, the moſt natural order of battle is evidently to range the ſhips abreaſt of each other, eſpecially if the engagement is general. The moſt convenient diſtance is properly within the point-blank range of a muſket, ſo that all the artillery may do effectual execution.

81. The combat uſually begins by a vigorous cannonade, accompanied with the whole efforts of the ſwivel guns and the ſmall arms. The method of firing in platoons, or volleys of cannon at once, appears inconvenient in the ſea-ſervice, and perhaps ſhould never be attempted unleſs in the battering of a fortification. The ſides and decks of the ſhip, although ſufficiently ſtrong for all the purpoſes of war, would be too much ſhaken by ſo violent an exploſion and recoil. The general rule obſerved on this occaſion, throughout the ſhip, is to load, fire, and ſpunge the guns with all poſſible expedition, yet without confuſion or precipitation. The captain of each gun is particularly enjoined to fire only when the piece is properly directed to its object, that the ſhot may not be fruitleſsly expended. The lieutenants, who command the different batteries, traverſe the deck to ſee that the battle is proſecuted with vivacity; and to exhort the men to their duty. The midſhipmen ſecond theſe injunctions, and give the neceſſary aſſiſtance, wherever it may be required, at the guns committed to their charge. The gunner ſhould be particularly attentive that all the artillery is ſufficiently ſupplied with powder, and that the cartridges are carefully conveyed along the decks in

covered boxes. The havock produced by a continuation of this mutual aſſault may be readily conjectured by the reader's imagination; battering, penetrating, and ſplintering the ſides and decks; ſhattering or diſmounting the cannon; mangling and deſtroying the rigging; cutting aſunder or carrying away the maſts and yards; piercing and tearing the ſails, ſo as to render them uſeleſs; and wounding, diſabling, or killing the ſhip's company! The comparative vigour and reſolution of the aſſailants, to effect theſe pernicious conſequences in each other, generally determine their ſucceſs or defeat; we ſay *generally*, becauſe the fate of the combat may ſometimes be decided by an unforeſeen accident, equally fortunate for the one and fatal to the other. The defeated ſhip, having acknowledged the victory by ſtriking her colours, is immediately taken poſſeſſion of by the conqueror, who ſecures her officers and crew as priſoners in his own ſhip; and inveſts his principal officer with the command of the prize until a captain is appointed by the commander in chief.

82. The engagement being concluded, they begin to repair; the cannon are ſecured by their breechings and tackles with all convenient expedition. Whatever ſails have been rendered unſerviceable are unbent, and the wounded maſts and yards ſtruck upon deck, and fiſhed or replaced by others. The ſtanding rigging is knotted, and the running rigging ſpliced, wherever neceſſary. Proper ſails are bent in the room of thoſe which have been diſplaced as uſeleſs. The carpenter and his mates are employed in repairing the breaches made in the ſhip's hull, by ſhot plugs, pieces of plank, and ſheet-lead. The gunner and his aſſiſtants are buſied in repleniſhing the allotted number of charged cartridges, to ſupply the place of thoſe which have been expended, and in refitting whatever furniture of the cannon may have been damaged by the action.

83. Such is the uſual proceſs and conſequence,of an engagement between two ſhips of war, which may be conſidered as an epitome of a general battle between fleets or ſquadrons. The latter, however, involves a greater variety of incidents, and neceſſarily requires more comprehenſive ſkill and judgment in the commanding officer; of which we ſhall add a ſhort account.

84. When the admiral or commander-in-chief of a naval armament has diſcovered an enemy's fleet, his principal concern is uſually to approach it, and endeavour to come to action as ſoon as poſſible. Every inferior conſideration muſt be ſacrificed to this important object, and every rule of action ſhould tend to haſten and prepare for ſo material an event. The ſtate of the wind, and the ſituation of his adverſary, will in ſome meaſure dictate the conduct neceſſary to be purſued with regard to the diſpoſition of his ſhips on this occaſion. To facilitate the execution of the admiral's orders, the whole fleet is ranged into three ſquadrons, each of which is claſſed into three diviſions, under different officers. Before the action begins, the adverſe fleets are drawn up in two lines. As ſoon as the admiral diſplays the ſignal for the line of battle, the ſeveral diviſions ſeparate from the columns in which they were diſpoſed in the uſual order of ſailing, and every ſhip crowds ſail to get into its ſtation in the wake of the next ahead; and a proper diſtance from each other is regularly obſerved from the van to the rear. The admiral, however, will occaſionally contract or extend his line, ſo as to conform to the length of that of his adverſary, whoſe neglect or inferior ſkill on this occaſion he will naturally convert to his own advantage, as well as to prevent his own line from being doubled; a circumſtance which might throw his van and rear into confuſion.

85. When the adverſe fleets approach each other, the courſes are commonly hauled up in the brails, and the topgallant ſails and ſtay ſails furled. The movement of each ſhip is chiefly regulated by the main and foretop ſails and the jib; the mizen topſail being reſerved to haſten or retard the courſe of the ſhip; and, in fine, by filling or backing, hoiſting or lowering it, to determine her velocity.

86. The ſignal for a general engagement is uſually diſplayed when the oppoſite fleets are ſufficiently within the range of point blank ſhot, ſo that they may level the artillery with certainty of execution, which is near enough for a line of battle. The action is begun and carried on throughout the fleet, in the manner above deſcribed between ſingle ſhips. The various exigencies of the combat call forth the ſkill and reſources of the admiral to keep his line as complete as poſſible, when it has been unequally attacked; by ordering ſhips from thoſe in reſerve to ſupply the place of others which have ſuffered greatly by the action; by directing his fire-ſhips at a convenient time to fall aboard the enemy; by detaching ſhips from one part of the line or wing which is ſtrongeſt to another which is greatly preſſed by ſuperior force, and requires aſſiſtance. He muſt review the ſituation of the enemy from van to rear; every motion of whom he ſhould, if poſſible, anticipate and fruſtrate, and ſeize every favourable occaſion. Inſtead of being diſconcerted by any unforeſeen incident, he ſhould, if poſſible, make it ſubſervient to his deſign. His experience and reflection will enable him to diſcover the ſtate of his different ſquadrons and diviſions. Signals of inquiry and anſwers, of requeſt and aſſent, of command and obedience, will be diſplayed and repeated. Tenders and boats will alſo continually be detached between the admiral and the commanders of the ſeveral ſquadrons or diviſions.

87. As the danger preſſes on him, he ought to be fortified by reſolution and preſence of mind, as the conduct of his officers may in a great degree be influenced by his intrepidity and perſeverance. In ſhort, his renown or infamy may depend on the fate of the day.

Sect. VI. Manoeuvres *performed by* ADVERSE FLEETS *when in* SIGHT *of* EACH OTHER.

88. To diſpute the WEATHER-GAGE with the enemy.—When the enemy is to windward, and it is wiſhed to gain the weather-gage of him, the fleet to leeward ſhould avoid extending itſelf the length of the enemy's line, to oblige them to edge down upon theirs, if they intend to attack them; which will be a mean, if they ſtill perſiſt in doing ſo, of loſing the advantage of the wind. It is impoſſible for a fleet to leeward to gain to windward ſo long as the enemy keep their wind, unleſs

a change happens in their favour; therefore all that a fleet to leeward can do, muſt be to wait with patience for ſuch a change; which they will undoubtedly avail themſelves of, as well as any miſtake or inadvertency the enemy may commit. In the mean time, and as long as the fleet to leeward does not extend its line the length of the enemy's, it will be impoſſible for the latter to bring them to action without running the hazard, by bearing down, of loſing the advantage of the wind, which both fleets will be ſo deſirous of preſerving.

89. Hence, that an admiral may benefit by the hifts of the wind that frequently happen, he muſt n a manner force them; which will not appear ſo extraordinary to officers of experience, who know what winds reign moſt on the coaſt, or of the headland, where they may expect an enemy. The diſpoſition of projecting head-lands, and the ſetting of ides or currents, alſo contribute greatly towards gaining the wind of the enemy. The fleet to windward ought to keep that to leeward as much as poſſible always abreaſt of it; becauſe, by doing ſo, they will preſerve the advantage they have, unleſs the wind changes much againſt them. They hould force them likewiſe to keep their wind, uneſs they think it more prudent not to engage; in which caſe they ſhould keep entirely out of ſight.

90. The following obſervations, with reſpect o the ſhifting of the wind, are given by M. Bourde de Villehuet: 1. If the weather fleet be in order of battle, and the wind draw ahead, the lee fleet, if they be ahead and in order of battle, ought to box off on the ſame tack as before, to tack in ſucceſſion in the wake of one another, to reſtore the order of battle; drawing at the ſame time a great deal to windward. This manœuvre may even be the means of weathering the enemy, if the wind ſhould ſhift much; for they have no other method to regain the order of battle, without loſing much ground; though they will always loſe a great deal with reſpect to the poſition of the enemy to leeward. 2. If the lee fleet be aſtern, and the wind ſhifts aſt, while they are on the contrary tack with the enemy in order of ſailing on one line, the lee fleet ought to tack or veer all together, at the ſame inſtant; becauſe this ſhift of wind will be ahead for all the ſhips in reſpect to their tacks then on board, and aſtern in reſpect to the order of battle. When the van ſhip is full on the other tack, as well as all the reſt in their former order of battle, ſhe ſhall haul by the wind, while the reſt of the fleet run large on their firſt line of battle as many points as the wind has ſhifted aſt, to get into her wake ſucceſſively, and reſtore the order of battle while approaching the enemy; by which they gain the wind of them, or elſe double them if the ſhift has been great; for the only means they have of reſtoring the line of battle is by the van ſhip hauling by the wind, and the reſt coming into her wake in ſucceſſion. If the ſhift of the wind was four points, the fleet to leeward would be obliged ſtill to perform the ſame manœuvre that they might go about, after a certain time, ſucceſſively to windward of the enemy, who could only in the mean time have tacked all together, to bring their fleet ſuddenly in a line of battle on the other board.

91. If, when the wind ſhifts aſt, the lee fleet is aſtern in order of battle, and the enemy be on the other tack in the order of ſailing, the leading ſhip muſt haul cloſe to the wind immediately, while the other veſſels will, in ſucceſſion, bear away as many points as the wind has ſhifted, in order to perform the ſame manœuvre and reſtore the line of battle. By obſerving this mode of manœuvring, you will approach the enemy, and gain as much to windward of him as poſſible, or get even the weather-gage of him entirely, if the wind has ſhifted conſiderably. The rear-ſhip of the fleet to leeward may immediately keep cloſe to this new wind on the ſame board, while all the reſt of the fleet, after having tacked together and at the ſame time, will come and place themſelves cloſe by the wind in her wake, where they are again to tack ſucceſſively, in order to follow their rear ſhip, which is now become the leader, and which may break the enemy's line, or at leaſt gain the wind of them. But, to go through this evolution, you muſt have nothing to fear from the enemy; for the fleet will be obliged to go about twice before the order of battle can be reſtored. The weather fleet ought to keep their wind as cloſe as poſſible, holding the enemy always exactly to leeward of them, by keeping on the ſame tack as he; and if the wind ſhifts a little, and becomes favourable to the enemy which is to leeward, the weather ſhips are then to keep exactly their wind, without caring for the preſervation of the line, unleſs the two fleets be very near one another.

92. *To* force the enemy *to* action. 1. When [illegible]e enemy has the weather-gage.—When two adverſe fleets are in ſight of each other, an engagement is almoſt unavoidable; for, as the faſteſt ſailing ſhips of the one fleet will ſail faſter than the ſloweſt ſailing veſſels of the other fleet, the fleet that is in purſuit will gain upon the other. The lee fleet, which is wiſhing to bring on an engagement, muſt therefore keep always on the ſame tack with the weather fleet; and taking care to keep them ſo exactly abreaſt as to prevent the leaſt danger of loſing ſight of them, and hence be ready to take the advantage of the firſt favourable ſhift of wind to make the attack. Night is certainly the time when an alteration of the courſe may be beſt attempted. But the lee fleet is to have frigates on the look-out; which, by ſignals, will continually give notice of the manœuvre and courſe of the retreating fleet to windward; which, by theſe means, is always expoſed to be purſued without being able to get off unſeen, and muſt ſooner or later be compelled to come to action, unleſs they can get into ſome port, or a gale of wind ſhould come to reſcue them, by diſperſing both fleets. 2. When the enemy is to leeward.—If the lee fleet keep cloſe the wind in the order of battle, the fleet to windward is to ſtand on in the ſame manner till it is abreaſt of the enemy, ſhip to ſhip, when they are all together, and at the ſame time to bear away, and ſteer exactly ſo as to bring their reſpective opponents, in the adverſe line, on the ſame point of the compaſs with them; obſerving the principles of chaſing which are to be obſerved by every chaſer to windward. Thus the fleets will be near enough to begin the action, in preſenting the bow of each ſhip to her opponent in the order of ſailing, which

will be eaſily changed for the line of battle, by all the ſhips hauling cloſe to the wind together, in the moment which precedes the beginning of the action.

93. If the fleet to leeward be inclined to engage, it might bring to, to prevent loſing time; as, by this manœuvre, leſs time will be requiſite for the weather fleet to join them; then they will fill as ſoon as the action begins, becauſe it is more favourable to a lee-line to be advancing ahead; ſince, if a ſhip be diſabled in the weather-line (which is obliged to follow with the topſails full), ſhe will infallibly drop, and run foul of the next veſſel aſtern of her, covered with fire and ſmoke, which may be productive of great diſorder. As the lee fleet fills and ſtands on cloſe by the wind, the weather-line ſhould be abreaſt and parallel to the other, before they bear away to come within the requiſite diſtance for action, that the van-ſhip of the weather fleet may always keep to windward of the leading ſhip of the lee-line, and be guarded againſt ſuch a ſhift of wind as might come ahead; which would not be the caſe if they were aſtern of the van-ſhip in the lee fleet; which, as well as the reſt of the line, would be able then to double them to windward, by tacking in ſucceſſion.

94. Another reaſon for the weather line being right abreaſt of the enemy to leeward, and for every ſhip ſteering on the ſame point in approaching her opponent in the leeward line of battle, is, that the fleets may be placed parallel to each other; for, as the weather line muſt not be aſtern becauſe of the riſk of the wind coming more forward, neither muſt they be ahead of the line to leeward, in caſe the wind ſhould come aft; for then the lee fleet, keeping cloſe by the wind in the wake of their leading ſhip, might, by this ſhift, be as far to windward as the oppoſing fleet, or even get the weather-gage of them. But if the weather-fleet keep exactly abreaſt of the other, they will always be in a ſituation to preſerve their advantage without expoſing themſelves. However, thoſe ſhips keeping more away than the line to leeward will, when within gun-ſhot, be in a very diſagreeable ſituation with reſpect to the enemy's ſhips, which will have it then in their power to rake them as they bear down. This may occaſion much diſorder among the ſhips of the weather-line, which for that moment, have it not in their power to fire their whole broadſide at the enemy, who has the advantage of beginning the action.

95. If the lee fleet bear away four points to move their order of battle on the other tack and avoid the action, filing off in ſucceſſion in the wake of the van ſhip, the weather-line, by bearing away all together eight points, cannot fail, as both fleets are ſuppoſed to ſail equally, to paſs through the middle of their line, and force them to fight with diſadvantage, if their extent be double the diſtance between the two fleets. If the extent of the fleet be leſs, then the weather fleet will divide the lee-fleet more unequally; and if the diſtance between the fleets be conſiderable, the weather-fleet will not be able to break through the line. If the lee-fleet bear away four points all together, being of equal extent with the fleet to windward, and their diſtance from each other equal to half the length of one of the lines, ſhould the weather-fleet bear away at the ſame time eight points, they will approach very near the ſternmoſt of the retreating fleet; but they will not have it in their power to cut off any part of that fleet, even with an equality of ſailing; ſo that the only advantage gained by this manœuvre will be an ability of attacking the rear, and bringing it to action.

96. If the van-ſhip and the reſt of the weather fleet had a ſufficient velocity to keep the centre ſhip of the lee-line on the ſame point of bearing; in that caſe the leading ſhip may break through the enemy's line about the middle ſhip of the centre diviſion; for, ſuppoſing the fleets in order of battle, on the ſtarboard tack, ſteering E. with the wind at SSW. being at two leagues diſtance from each other, both the lines being four leagues in extent; then the lee-line bearing away all together four points, will run NE. while the fleet to windward, bearing away all together eight points, will ſteer N. the van-ſhip of which will keep the centre diviſion of the lee-line on the point of bearing NW. As ſhe is ſuppoſed to be able to continue in this poſition, it follows, that the van of the weather-line muſt cloſe the centre of the flying line to the leeward, after having run four leagues. The time and diſtance neceſſary to cut off a retreating fleet may always be known according to the laſt ſuppoſition. Should the lee-fleet get upon the other tack and run large, ſtill preſerving the order of battle, they will be ſtill ſooner cloſed and forced to action by the weather-fleet, who have only to keep away from eight to nine points on the ſame tack, or run right before the wind.

97. The weather-fleet can always force the lee one to action, whatever movements they make; for, if they run with the wind right aft in order of battle, they cannot, ſuppoſing an equality of ſailing, avoid being cloſed or broken nearly about the centre by the weather-line, which has only to ſteer two points on each tack nearer the wind than the retreating fleet. So that the rear of the weather-fleet, having bore away no more than eight points, will be found at the end of a certain time to have approached extremely near the centre of the retreating fleet; and in a ſhort time more will be able to bring their rear to action. The weather-fleet have yet another advantage; becauſe, as their ſhips have the wind on the quarter, they ſail with greater celerity than thoſe of the lee-fleet, which run before the wind. The lee-fleet being abſolutely determined to fly, has therefore no other expedient left to prolong time, but to combat in the order of retreat right before the wind, or on the ſame courſe as the purſuing fleet; for other advantages are not to be relied on, if purſued by a victorious foe. On the whole we may conclude, that when in preſence of too powerful an enemy, it will never be poſſible to avoid an action, if he is determined to come to one.

98. *To* AVOID *coming to* ACTION. 1. When the enemy is to windward, the lee-fleet, which wiſhing to avoid an engagement, ought to form the order of retreat to fly from the enemy if they are in view of him, and run on the ſame tack as their chaſer. But if he is yet out of ſight, and they have intelligence of his approach by their frigates which are looking out, they may run large

arge from the hoſtile fleet, without confining hemſelves to keep the wind exactly aft, unleſs hey be in the order of retreat. There are, however, circumſtances when the lee fleet may run with the wind aft, without aſſuming the order of etreat; as, when they wiſh to gain time, or reolve to engage the enemy, if they ſtill continue o purſue them. But except on ſuch extraordinary occaſions, a fleet ſhould not fly before the enemy without being in the order of retreat, as he rear is then in the beſt ſituation to extricate hemſelves in caſe of accident. 2. When the enemy is to leeward, the weather fleet can ſcarcely ever e forced to engage; becauſe it can always coninue on that tack which increaſes its diſtance rom the enemy, by ſtanding on one tack, while he enemy continues upon the other. If t[illegible] wind was to remain on the ſame point of the compaſs or any conſiderable ſpace of time, it would be very eaſy for the fleet to windward to keep in ight of the enemy, without being under any apprehenſions of being forced to come to action; but the inconſtancy of the wind obliges the moſt experienced admiral to avoid meeting the enemy when he thinks it improper to engage him.

99. *To* DOUBLE *the* ENEMY *or to* BRING A PART *of their* FLEET *between* TWO FIRES. When he enemy has the weather-gage, the fleet which attempts to double an enemy ought always to be uperior in number of ſhips. The lee fleet ought to endeavour to range exactly abreaſt of, and parallel to, the weather fleet, ſo that the van or rear may extend beyond their line, to over-reach them, by tacking in ſucceſſion to double to windward their van or rear, and bring them between two ires. Provided this manœuvre be properly executed, it will be impoſſible for the ſhips in the weather line, thus preſſed, to continue long in their ports; for there is no veſſel cloſely attacked by two others of equal force which can long reſiſt being overcome, as it is always in the power of one of them to get into ſuch a poſition as to be able, without much danger on her ſide, to detroy the enemy in a very ſhort time. But wheher the moſt advantageous evolution is to double the van or the rear, is neceſſary to be conſidered; or there is ſo conſiderable an advantage attending each of theſe evolutions, that either of them may in a very little time determine the fate of the battle.

100. As, in the preſent caſe, the enemy is ſuppoſed to be to windward, either their van or rear may be doubled; but the van may with the greateſt facility; becauſe, if they are engaged by he ſhips abreaſt of them, thoſe which are advanced ahead will be able, by making all ſail, to get on the perpendicular to the direction of the wind with the van of the enemy, and tack in ſucceſſion o gain the wind of them on the other board, thus keeping them to leeward; and when they are come ſufficiently to windward, they are again to go about, in order to keep the two headmoſt ſhips of the enemy's line continually under their fire. f there be two or three ſhips to tack in ſucceſion and gain the wind of the enemy, they may edge down on the van of the weather line at pleaure, keep themſelves a little to windward of it; and as that van is already engaged by the other ſhips abreaſt on the other ſide, ſhe muſt neceſſarily be ſoon diſabled. If they bear away, they muſt drop upon the line with which they are engaged to leeward, while the ſhips to windward ſtill continue to cannonade them. If they attempt going about, in order to attack more cloſely the ſhips to windward, they will be raked, while in ſtays, by their opponents to leeward and to windward, who, infilading them with whole broadſides, which they cannot return, muſt abſolutely complete their diſorder. If they make ſail, in order to fruſtrate the deſign of the ſhips inclined to double, thoſe with which they are engaged abreaſt to leeward have only to perform the ſame manœuvre, and keep them under their fire; while the others, after having haraſſed them as much as poſſible, will do their beſt to perform the ſame manœuvre on the ſucceeding ſhips.

101. The captains deſtined to double the enemy ought to be men of known ability, as well as of approved courage. They ſhould not be ordered upon that ſervice but in weather fit for ſailing at the rate of three knots an hour at leaſt; and, for the greater promptitude and certainty of ſucceſs, none but the beſt going ſhips are to be employed.

102. If any of the ſhips in the van of the weather line be diſabled in their maſts or yards, they will drop aſtern and run foul of the next which follow, and theſe again of the ſubſequent ſhips; at laſt, diſorder will become prevalent, by ſhips running foul of each other, or manœuvring to avoid the ſame accident; ſo that the order of battle will be broken; while, on the other hand, the line to leeward is preſerved with all the advantage poſſible. The ſhips which have gained the wind of the enemy will, by continuing their manœuvres, augment the confuſion; and if they ſhould be crippled, it will not be eaſy for them to extricate themſelves. But as they may, on the other tack, drop aſtern to windward of the enemy's line, or veer again like him, they muſt extricate themſelves as well as they can, and always advantageouſly enough, if, by doubling the van, they are able to throw it into diſorder.

103. If the rear of the lee fleet be extended beyond the ſternmoſt ſhip of the weather line, they will be obliged, if they want to double the rear of the enemy to windward, to make ſail and tack in ſucceſſion; in which manœuvre the headmoſt ſhip of thoſe deſtined for this ſervice is to go about firſt; then, continuing to keep up a briſk cannonade as they come to the wind, they will go and heave about again a little to windward of the rear of the enemy, in order to bring their ſtern ſhips between two fires: and ſhould they have the good fortune to oblige them to bear away, they muſt go on ſucceſſively from one ſhip to another, as long as they find they ſucceed in forcing them to give way. Should diſorder take place in the rear of the weather fleet, it will not be near ſo prejudicial to the enemy as if it had happened in the van; on the contrary, it may turn out to be of ſome advantage to them. But the veſſels combating to windward can eaſily withdraw from the fight, by backing aſtern when they find themſelves too hard preſſed.

104. When an enemy is to leeward, the ſhips of the weather line having extended their van be-

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ment in the Eaſt indies in 1758, is given in *Clerk's Eſſay on Naval Tactics*, p. 160.

118. Hitherto we have conſidered chaſing in the caſe of ſingle ſhips only; the ſame rules are applicable to fleets. If the whole fleet is to give chaſe, the admiral will make the proper ſignal; and then each ſhip will inſtantly make all the ſail poſſible. If the retreating fleet is not much inferior to the other, a few of the faſteſt ſailing veſſels only are to be detached from the victorious fleet, in order to pick up any ſtragglers or thoſe ſhips which may have fallen aſtern; and the remaining part of the fleet will keep in the ſame line or order of ſailing as the retreating fleet, ſo that they may, if poſſible, force them to action. But if the retreating fleet is much inferior, the admiral of the ſuperior fleet will make the ſignal for a general chaſe; and then each ſhip will immediately crowd all the ſail poſſible after the retreating fleet; or, if the chaſe be ſtill leſs numerous, the admiral will detach one of the ſquadrons of his fleet, by hoiſting the proper ſignal for that purpoſe, and he will follow with the remainder of the fleet. The ſquadron that chaſes, or the cruiſers detached from the fleet, ſhould be very careful not to engage too far in the chaſe for fear of being overpowered; but at the ſame time to endeavour to ſatiſfy themſelves as much as may be in their power with regard to the object of their chaſe. They muſt pay great attention to the admiral's ſignals at all times; and to prevent ſeparation, they ſhould collect themſelves before night, eſpecially if there be any appearance of thick or foggy weather coming on, and endeavour to join the fleet again. The ſhips are diligently to obſerve when the admiral makes the ſignal to give over chaſe; that each regarding the admiral's ſhip as a fixed point, is to work back or make ſail into her ſtation, to form the order or line again as expeditiouſly as the nature of the chaſe and the diſtance will permit.

119. When a fleet is obliged to run from an enemy who is in ſight, it is uſual to draw up the ſhips in that form or order, called the *order of retreat*, which has been already deſcribed; and the admiral, when hard purſued, without any probability of eſcaping, ought, if practicable, to run his ſhips aſhore, rather than ſuffer them to be taken afloat, and thereby transfer additional ſtrength to the enemy. In ſhort, nothing ſhould be neglected that may contribute to the preſervation of his fleet, or prevent any part of it from falling into the hands of the conqueror.

PART II.

NEW SYSTEM OF NAVAL TACTICS.

120. We have now laid before our readers as comprehenſive a view as our limits will permit of the various evolutions uſually practiſed by fleets in naval war. The young ſeaman, however, who has the noble ambition to excel in his profeſſion, will conſult the authors mentioned in our hiſtorical introduction; but that the preſent article may be as complete as poſſible, a view muſt be given of the new ſyſtems of tactics, propoſed by the Viſcount De Grenier and our countryman Mr Clerk.

Sect. I. View *of* De Grenier's Naval Tactics.

121. Of all the orders, that of battle is the moſt important in naval tactics; but the order of battle which was firſt formed in the 17th century by the Duke of York, and has been continued in uſe till within theſe 20 years, the Viſcount de Grenier thinks extremely defective. Various cauſes may conſpire to render the taſk of breaking it not difficult. Its great extent muſt make it no eaſy matter for the admiral to judge what orders are proper to be iſſued to the ſhips ſtationed in its extremities; whilſt his ſignals, however diſtinctly made, are liable to be miſtaken by the commanders of thoſe ſhips. The extremities of a long line are neceſſarily defenceleſs, eſpecially if it be to leeward; becauſe, after it is formed, the enemy may throw himſelf with a ſuperior number on its van or rear, and put that ſquadron to flight before aſſiſtance can be ſent to it from the other ſquadrons. Theſe defects the Viſcount de Grenier thinks may be remedied by never preſenting to the enemy any part of a fleet without its being flanked; ſo that were the commander of the adverſe fleet to attack thoſe parts which hitherto have been reckoned weakeſt, he might find himſelf defeated when he looked for conqueſt. With this view he propoſes a new order of battle; in which the fleet, compoſed of three diviſions, inſtead of being drawn up in one line as uſual, ſhall be ranged on the three ſides of a regular lozenge, formed by the interſecting of the two cloſe-hauled lines. It is obvious that one of the diviſions of a fleet ranged in this manner will always be formed in the order of battle; whilſt the two others, reſting upon the firſt ſhip ahead and the laſt aſtern of the diviſion, will be formed on the cloſe-hauled line oppoſite, and will ſtand on chequerwiſe on the ſame tack with the ſhips which are in the line of battle, ſerving to cover the headmoſt and ſternmoſt of thoſe ſhips, and thereby prevent the enemy from penetrating the line or doubling the rear.

122. The Viſcount thinks it a great miſtake, though very generally fallen into, that the weather gage is of any advantage to a fleet equal in force to its enemy and willing to engage. To him the great art of war at ſea appears to conſiſt in drawing or keeping to *windward a part of the adverſe fleet*, and collecting all one's forces againſt that part; and it is chiefly to effect this purpoſe that he propoſes his new ſyſtem of tactics. The reader muſt never loſe ſight of this evident truth, that each ſhip of a fleet neceſſarily occupies at all times the centre of an horizon; which the author divides into two unequal parts, calling the greater the *direct and graduated ſpace*, and the leſs the *indirect, croſſed, and ungraduated ſpace*. The reaſon of theſe appellations is, that on the greater ſegment of the horizontal circle there are 20 different points, which may be marked by degrees from one of the cloſe-hauled lines to the other, and to which a ſhip may ſail from the centre by ſo many direct courſes, without tacking; whereas to the other 12 points, including that from which the wind blows, ſhe cannot arrive but by ſeveral

croſs courſes, which muſt neceſſarily delay her progreſs.

123. Suppoſe now a fleet to leeward, ſo diſpoſed that only a part of it can fight with another equally numerous, and ranged to windward in a ingle line; and let the lee fleet be ranged on the three ſides of a lozenge *a b*, *c d*, *e f*. (*Pl.* 239, *fig.* 16.) The ſquadron *a b*, which is moſt to windward, being drawn up in line of battle, cannot be fought but by an equal number AB of the weather fleet AB, CD, F. All the reſt of that fleet therefore, muſt remain inactive, unleſs the ſhips which are not engaged ſhould try to paſs to leeward of the fleet *a b*, *c d*, *e f*. But ſhould the hips of the weather fleet, which are placed between B and F, bear away as they appear in the igure between C *i* and F *i*, it is evident that the hips A and B, which are fighting to windward, cannot bear away with them. Suppoſe now that, after the ſhips between C *i* and F *i* have paſſed to leeward, the ſquadrons *c d*; *e f*, which are ranged according to the new ſyſtem, and have not yet been engaged, ſhould come to windward and join with their friends *a b* againſt that ſquadron of the enemy AB which is ſtill to windward and engaged; it ſeems almoſt inevitable but that the ſquadron AB muſt be deſtroyed by ſo great a ſuperiority, before it could receive any aſſiſtance rom the ſhips to leeward between C *i* and F *i*. No doubt thoſe ſhips would endeavour to ſuccour their friends; but with reſpect to them, the ſquadron AB muſt be conſidered as placed in that part of the horizon which our author calls *croſſed and indirect*, and to which they would not be able to repair, but by ſteering alternately the two cloſe-hauled lines; and aſſiſtance brought by ſo tedious a courſe would come too late to be of eſſential ſervice. It is from this apparently well-ſupported concluſion that the Viſcount de Grenier deduces the propriety of his propoſed orders of ſailing and order of battle.

124. Of orders of ſailing, he thinks, there can be no occaſion for more than three; one, when a fleet is to paſs a ſtrait; another, when it ſteers in an open ſea, either looking for the enemy or trying to avoid him; and the third, when it has an extenſive cruiſe to perform, in which the ſhips hould be ſo diſpoſed as not to be ſurpriſed or cut off by the enemy. His firſt order of ſailing differs not from that in common uſe. It is and muſt be obſerved in any narrow road, whatever may be the occaſion of its narrowneſs, whether rocks or ands.

125. In the 2d order of ſailing, when the fleet is looking for the enemy or trying to avoid him, the columns *a b*, *c d*, *e f*, are to be formed on three ſides of a regular lozenge, and ranged on the two cloſe-hauled lines. The ſhips of the two diviſions *c d*, *e f*, ſometimes to windward (as in *fig.* 17.), and ſometimes to leeward (as in *fig.* 18.) of the third diviſion *a b*, are to be formed on two parallels of one of the cloſe-hauled lines in the wakes of their reſpective headmoſt ſhips; and the third diviſion *a b* is to be ranged ahead or aſtern of the two others on the other cloſe-hauled line, and nevertheleſs to ſteer chequerwiſe the ſame courſe as the two diviſions *c d* and *e f*. When *a b* is to windward of *c d* and *e f* (*fig.* 18.), the Viſcount calls that the *primitive* windward order of ſailing; and when to leeward (*fig.* 17.), the fleet is in the *leeward primitive* order of ſailing. The poſition of the three diviſions in the windward primitive order of ſailing is the ſame for the order of battle natural; for the order of retreat; and for the order of circumvallation, when the object is to ſeparate from the hoſtile fleet a part of its ſhips in order to engage the remainder with more advantage. The poſition of the three diviſions in the leeward primitive order of ſailing is alſo the ſame for the order of battle inverted; for the order of chaſing; and for the order of convoy; ſo that in no poſſible caſe, when looking for the enemy or wiſhing to avoid him, need the admiral perplex himſelf with more than theſe two poſitions on the one or the other tack, whatever movements he may wiſh the fleet to make.

126. In the 3d order of ſailing, the diviſions *c d* and *e f*, inſtead of bearing on the headmoſt and ſternmoſt ſhips of the diviſion *a b*, may be very conveniently placed at conſiderable diſtances from that diviſion, without the ſmalleſt danger of being ſurpriſed by the enemy, provided the ſhips of each of the diviſions keep always their reſpective poſitions in the two lines of bearing. For if we ſuppoſe the three diviſions to be in ſuch poſition, that *a b* and *e f* are at the diſtance of ſix leagues from each other (*fig.* 19.), and that the two diviſions *c d* and *e f* reſt on the extremities of the baſe of the triangle STV, while the centre ſhip of the diviſion *a b* reſts on its ſummit T; none of the diviſions could be cut off by an enemy, however formidable, ſeen from its centre ſhip at the diſtance of ſix leagues. For if, upon the proper ſignal being thrown out, the diviſion *a b* ſhould ſteer from T towards X, on the courſe oppoſite to the cloſe-hauled line it ſteered before, and the two diviſions *c d* and *e f* ſteer from V and S towards X likewiſe; it is plain that each of theſe three diviſions would have only three leagues to run in order to join the other two in the windward primitive order of ſailing, which is the ſame with the order of battle natural; whilſt the enemy, which was firſt perceived at the diſtance of ſix leagues, muſt neceſſarily run nine before he could come up with the neareſt of theſe ſquadrons. And if frigates were placed ahead, and in the intervals between the diviſions, at the points *y y y* to windward and leeward of the fleet, the enemy might be ſeen at a ſtill greater diſtance, and the danger of ſurpriſe be ſtill ſo much leſs.

127. We have ſaid, that the poſition of the three diviſions in the primitive orders of ſailing is the ſame with our author's propoſed order of battle; but there is this difference between them, that in the order of battle only the ſhips of one of the three diviſions ſtand in the wakes one of another, and that thoſe of the two other diviſions are ranged on two parallel lines, and ſteer chequerwiſe. So that if it be wanted to change a fleet from the windward primitive order of ſailing to this new order of battle on the other tack, the movement will be infinitely quicker than thoſe which, in former known tactics, are commonly preſcribed, to paſs from all the orders of ſailing, either in one line, or on the obtuſe angle of chaſing or retreating, or in three or ſix diviſions, to

the uſual order of battle. For it will be ſufficient for the ſhips of the three diviſions, ranged in the windward primitive order of ſailing, to heave in ſtays all together, and get on the other tack in the oppoſite line of bearing, and they will inſtantly find themſelves in this new propoſed order of battle, (*fig.* 20.); and ſhould the fleet be in the leeward primitive order of ſailing, it would be ſufficient for the ſhips of the three diviſions all together to haul their wind on the ſame tack as they ſteer, and they would find themſelves in order of battle, *fig.* 21.

128. When the two columns *c d*, *e f*, are to leeward of the third diviſion *a b*, ranged in order of battle, our author calls *that* the order of battle *natural*; and when *c d* and *e f* are to windward of *a b*, the fleet is in the order of battle *inverted*. The former of theſe orders is calculated for a fleet combating to leeward, and the latter for a fleet which muſt combat to windward.

129. That we may form ſome notion of the advantages which our author expects from drawing up a fleet for battle in the form of a lozenge, let us ſuppoſe the line AB, CD, EF, (*fig.* 22.), to repreſent the fleet of an enemy to windward in the ordinary order of battle on the cloſe-hauled line of bearing, and on the ſtarboard tack. Then the leeward line *a b* will repreſent one of the diviſions, in order of battle on the ſtarboard tack, of the fleet ranged according to the new natural order, which the enemy wiſhes to attack, and to which he believes himſelf ſuperior, becauſe that diviſion offers a front much inferior to his own. The two lines *c d*, *e f*, will repreſent the two other diviſions ſtanding on chequerwiſe on the ſame tack as the line of battle, and formed on the oppoſite cloſe-hauled line. On this ſuppoſition, if the diviſions AB, EF, of the hoſtile fleet, which have it not in their power to attack the ſhips of the line *a b*, wiſh to fall on the headmoſt ſhip *a* or the ſternmoſt *b* of that line, they will be obliged to bear away, in order to attack the two ſhips *a* and *b*.

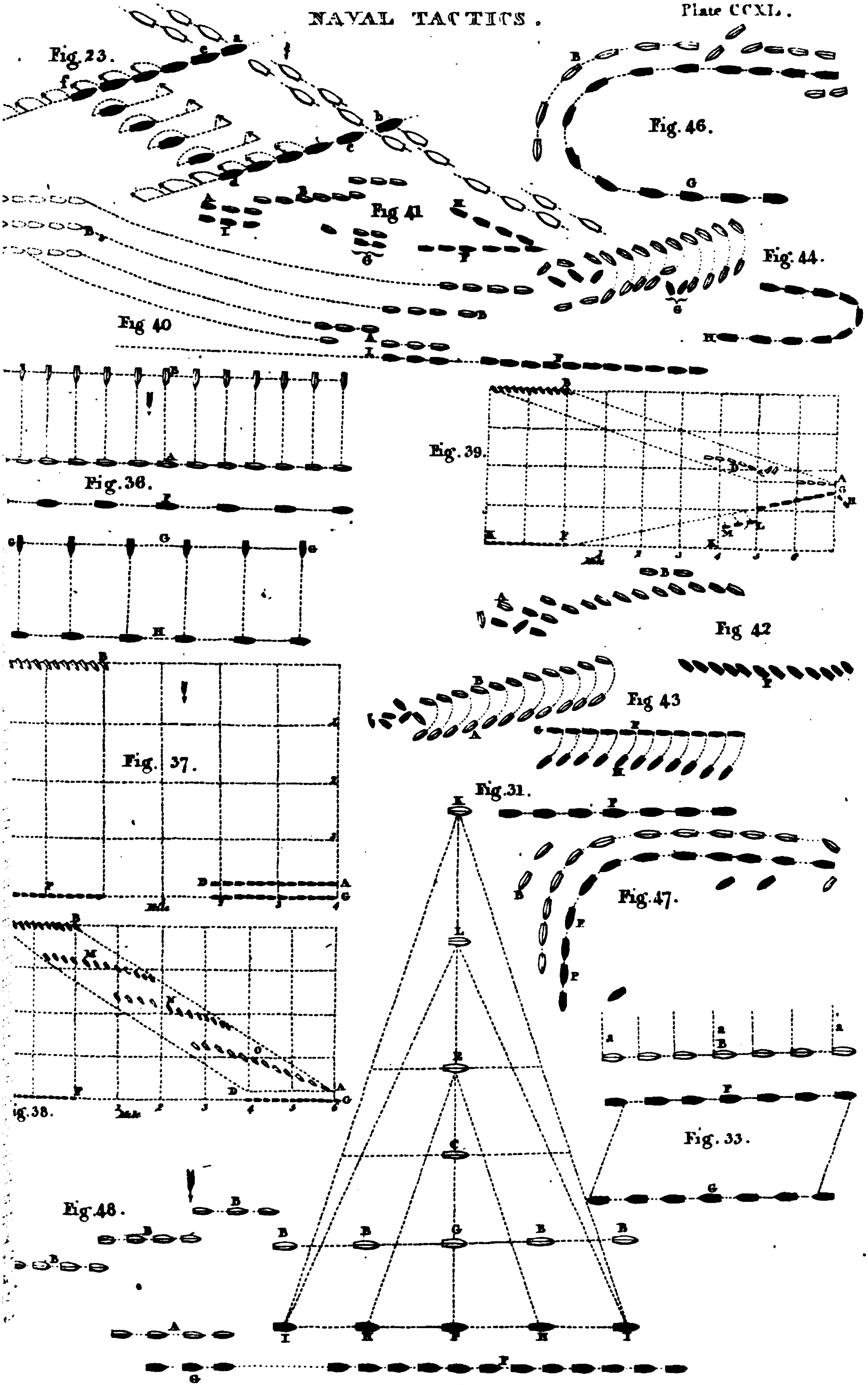
130. To prevent this, each of the diviſions *c d*, *e f*, of the fleet ranged according to the new order, ſhould make the following evolutions, according to their reſpective ſituations, and to the manœuvres of the enemy. 1ſt, The ſhips of the diviſion *a b* are to ſlacken as much as poſſible their headway, and form a very cloſe line, till the enemy makes a movement to attack the headmoſt or ſternmoſt ſhip of that diviſion. 2dly, The ſhips of the diviſion *c d* are to make ſail, till they come under the 2d or 3d ſhip of the rear of the line of battle *a b*, when they will take the ſame ſail as the ſhips of that diviſion, to preſerve that poſition until their hoſtile ſhips make the evolution to attack the rear ſhips of that diviſion. In this ſituation the ſhips of the diviſion *c d* will be able to obſerve the manœuvres of the enemy, in order to change tack, and form themſelves in order of battle on the oppoſite board as ſoon as the hoſtile ſhips ſhall have, after their bearing away, run over a certain ſpace; becauſe the ſhips of the diviſion *c d*, ſteering afterwards cloſe-hauled in the wake of the ſternmoſt ſhip of the diviſion *a b*, will be able to cover the rear ſhips of that diviſion, and get the weather-gage of the hoſtile diviſions which are bearing away; rake their ſhips; run alongſide of them; double their rear-gard, and put it between two fires, if thoſe hoſtile ſhips are following in the wake of each other; divide it if they bear away chequerwiſe, or gain to windward, and put between two fires the enemy's diviſion CD, while it is engaged with the diviſion *a b*. 3dly, The diviſion *e f* may abandon their poſt, and ru chequerwiſe, under a preſs of ſail, in the ſam courſe and in the ſame order they were formed, as ſoon as they perceive that the enemy falls ahead of the diviſion *a b*; in order that if the diviſion AB of the enemy makes any manœuvre to bear away and fall on the diviſion *e f*, or on the r of the diviſion *a b*, they may, by going abo ſteer in order of battle, cloſe-hauled on the oppoſite line of bearing, and cover the headmoſt ſ of the diviſion *a b*, double the hoſtile diviſion C ahead, or divide the hoſtile diviſion AB, which running chequerwiſe on the oppoſite tack.

131. The two diviſions *c d*, *e f*, might ag manœuvre another way, in caſe the ſhips of t enemy were ranged in one ſingle line, not w formed, or ſhould be in diſorder and leave to great a diſtance between them while they are engaged very cloſe with the diviſion *a b*, (*fig.* 1ſt, By putting about the ſhips of the diviſion and likewiſe the ſhip *a* headmoſt of the divi *a b*: 2dly, By making at the ſame time the ſh of the diviſion *c d* tack, and likewiſe the ſhip the diviſion *a b*, to keep by the wind on the oppoſite cloſe-hauled line: 3dly, By making all ſhips of the diviſion *a b* (which ſtood between headmoſt *a* and the ſternmoſt *b*) bear away points at the ſame time, and making them take the ſame tack as the ſhips of the other diviſions, when they are on the beam of the ſte moſt ſhips of thoſe two diviſions; becauſe, in th poſition, the ſhips of the two diviſions *c d*, getting to windward on two parallels in order battle, in the wake of the two headmoſt *a* an might put between two fires a part of the ene ſhips, which then would be obliged to take ſame tack as theſe two diviſions, becauſe the of the diviſion *a b* (which are on the ſame tack thoſe two diviſions) might prevent the ſhips of enemy ſteering the courſe oppoſite to that tack.

132. From this ſuccinct expoſition it may obſerved, that, in the firſt ſuppoſition, the of thus diſpoſing the forces of a fleet is ſo the more ſuitable to the defence of the head and ſternmoſt ſhips of a line of battle, as the of the diviſion *c d*, being covered by that line battle, are able to manœuvre without any ſhip of that diviſion being expoſed to the fi the enemy; that the diviſion *e f*, the head ſhip of which is *e*, always preſents the ſide to enemy, without any one ſhip of that diviſion ing expoſed to receive the fire of the enemy ahead or aftern, becauſe they are not to ra a line of battle unleſs the enemy runs large fore the wind; and that, in the ſecond ſuppoſition, the only ſhips which are liable to be aftern, while they change tack, are the hea and ſternmoſt of the diviſion in line of battle, w cover the ſhips of the other two diviſions.

NAVAL TACTICS.

Plate CCXL.



T. Clark Sculp^t

133. As it is of the utmoſt advantage to know, t firſt ſight of the enemy, whether it be windvard or leeward of the fleet ranged lozenge-like, n what tack, and on what ſide the fleet muſt be ormed, in order to defend itſelf or attack the enemy with advantage, it is to be obſerved, that both the windward and leeward primitive orlers of ſailing, the direction of the wind always raverſes both the weathermoſt and leewardmoſt hips of the fleet, (*figs.* 18. and 17.); that this leevardmoſt ſhip is always placed in the centre of n horizon, which is to be conſidered as the hoizon of the whole fleet; and that it is from that hip you are to judge, by means of the rules which re known and practiſed in ſuch caſes, whether he lozenge-like fleet be to windward or to leevard of that of the enemy. If you want to know, t ſight of the enemy, ſeen either to windward or o leeward, on what ſide the line of battle is to e formed, in order to be able to ſend one of the liviſions on that ſide of the lozenge where there is one, it is the poſition of the enemy with reſpect o the direction of the wind which is to determine it; becauſe, if the enemy is to windward of he fleet ranged in the windward primitive order f ſailing, and if it bears down on that fleet, with he wind large or right aſt, it belongs to its veathermoſt ſhip to obſerve what follows. If hat ſhip, by ſetting the enemy, finds him to ſtaroard of the direction of the wind, the diviſion vhich is ſtarboard of that direction of the wind is o take the ſtarboard tack, and range in order of attle before the enemy is arrived within gunhot: if, on the contrary, the above-mentioned hip finds the enemy to larboard, it belongs to he larboard diviſion to aſſume the order of battle, and to take that tack before the enemy can ome to action. The old rule for chooſing the roper tack is to be obſerved by a fleet in the leevard primitive order of ſailing; obſerving, that t is the buſineſs of that fleet's leewardmoſt ſhip o determine it; and the point of the horizon, vhich is oppoſite to that whence the wind blows, s the point towards which the obſerver is to be urned to judge on what ſide, whether ſtarboard r larboard, the line of battle is to be formed; ecauſe, in that poſition, the ſtarboard ſide muſt lways be on his right hand and the larboard on is left.

134. By following this general rule, the line of attle will never be expoſed to be too much engthened either to windward or to leeward, in rder to oppoſe all the ſhips of the adverſe fleet ormed in one ſingle line, nor even to be ſurpriſed n diſorder by that fleet while you are forming in rder of battle, natural or inverted.

135. Our author's orders of CHASING, of RETREAT, and of CONVOY, are very eaſily formed. The ſeaman, or even the landſman, who has any olerable conception of his orders of ſailing and f battle, will not ſtand in need of any farther leſcription of them. It muſt, however, be obſerved, that in the order of chaſing, the fleet in he lozenge-like poſition preſents the obtuſe angle f chaſing, as when ranged according to the ordiary tactics; with this difference, that, to form hemſelves in order of battle, it is enough that, n this lozenge-like poſition, the ſhips of the 2d diviſion ſhould all keep the wind on the ſame board they were ſtanding on, becauſe they would afterwards find themſelves in a line in the wake one of another; but, according to the uſual tactics, the ſhips have a long ſpace to run before they can execute the ſame evolution.

136. The Viſcount de Grenier gives the following directions for the moſt advantageous placing of the admiral's ſhip, the frigates, and tranſports belonging to a lozenge-like fleet, whether it be ranged in the order of ſailing or of battle, &c.

137. In the order of ſailing, the admiral A is to be placed ahead of the fleet, at a ſhort diſtance from the headmoſt of the ſecond diviſion, and in the direction of the wind with the headmoſt of the firſt diviſion, (*fig.* 24.) Two of the frigates *ff* are to obſerve the ſame rule and the ſame poſition with reſpect to the van ſhip of the third diviſion and the ſternmoſt of the firſt. In the order of battle on the contrary, the admiral is to be in the centre of the lozenge, and two of the frigates on the 4th ſide of the lozenge, (*fig.* 25.) As for the tranſports and ſtore-ſhips, when there are any, their ſtation is to be in one line on the ſide oppoſite to that of the enemy, when ranged in order of battle; and, if in order of ſailing or convoy, they may occupy the ſpace circumſcribed by the lozenge. In any other circumſtance, theſe ſhips are to occupy the different ſtations appointed for them, that they may diſtinguiſh the ſignals and execute the commands of the admiral. Laſtly, when the fleet ſhall paſs from the order of battle to any other order whatever, or from any order to the order of battle, the admiral's ſhip is to bring to, and not to take any of the poſitions above mentioned till after the complete execution of the movement.

Sect. II. View *of* Mr Clerk's Naval Tactics.

138. We now introduce to our readers a ſyſtem which has met with very great approbation from the ableſt officers in the Britiſh navy, which appears to be founded on principles ſelf-evident, and is therefore now generally adopted. Mr Clerk, in the introduction to his Eſſay, informs us, that upon conſidering the great ſuperiority diſplayed in the three laſt wars by the Britiſh ſeamen over their enemies when engaged in ſingle ſhips, and comparing it with the very little that, previous to Lord Rodney's glorious action on the 12th April 1782, (See England, § 106.), they had atchieved when engaged in fleets drawn up in line of battle, he was led to conclude, that there muſt be ſomething wrong in our mode of making the attack. He turned his thoughts to the ſubject, and in 1790 publiſhed part of a large work, comprehending, 1. *A Theory of Attack from Windward*; 2. *A Theory of Attack from Leeward*; and, 3. *An Hiſtorical Sketch of Naval Tactics.*

Observations *on the* present Method *of* bringing Ships *to* Action.

139. It has often, if not generally, been the practice, in the caſe of ſingle ſhips, as well as in that of fleets, for the weather ſhip or fleet, when it is wiſhed to bring the other to action, to ſteer directly down upon that ſhip or fleet, without re-

flecting, that, by doing ſo, it gives the enemy an opportunity of completely diſabling it before it can attain its wiſhed for ſtation. For each ſhip in the lee line can uſe all the guns upon one ſide; whereas the ſhips in the weather-line, bearing directly down, have it only in their power to uſe their bow-chaſes. This method of attack appears, therefore, to be the worſt poſſible for the weather fleet, and the moſt advantageous for the lee fleet. For ſuppoſe a ſingle ſhip of 80 guns to windward at B, (*fig.* 26.) diſcovering an enemy's ſhip of equal force to leeward at F, to bear directly down upon her endwiſe, the receiving ſhip F, by lying to, as in *fig.* 27, *Plate* CCXXXVIII, would preſent a broadſide of 40 heavy guns, bearing upon B during a courſe of two miles, in which every ſhot might take effect; while B, in this poſition, would have it in her power to bring only the two light guns of her forecaſtle or bow-chaſe to bear on F; a diſadvantage greatly exceeding 20 to 1. Beſides, the receiving ſhip F, by laying broadſide to, will have all her maſts and rigging more open, and conſequently will allow ſhot to paſs with leſs effect than the ſhip B, which, coming endwiſe, is liable to be raked by every ſhot from ſtem to ſtern. The conſequence of which muſt be, that B would be diſabled in her rigging, &c. long before ſhe could arrive at a proper poſition for annoying F; and when ſhe had attained that poſition, F, by being entire in her rigging, would have it in her power to fight in any poſition, or to make off at pleaſure.

140. The method then is, B, having the wind, ſhould run down aſtern, as *per* dotted line, and getting into the courſe, or near the wake of F, or a poſition that will bring her parallel to the courſe of F, at a proper diſtance, ſhe could then run up cloſe along ſide of B, upon equal terms, as in *fig.* 28, *Pl.* CCXXXIX; or otherwiſe, on ſhooting ahead, ſhe may veer, and run down on the weather-bow of F, as in *fig.* 29. till ſhe ſhall force F to bear away to leeward, keeping cloſe by F on equal terms; but during the courſe, in both caſes, carefully watching that F may not have it in her power to bring her broadſide to bear upon B without retaliation.

141. It having been often ſaid that the French have made it a rule to throw the whole effect of their ſhot more particularly into the rigging of their enemy, and that the Britiſh, on the other hand, have been as attentive to point the force of their fire againſt the hull of the ſhip; it is proper to ſtate the two caſes, and compare the effect.

142. Let us ſuppoſe a ſhip of 80 guns wiſhing to avoid the effects of a cloſe engagement, but at the ſame time lying to as at F, *Pl.* CCXXXVIII, *fig.* 30, intending to receive with every advantage, an enemy B of equal force, coming down with an intention to fight her; and let us ſuppoſe that F, by aiming her fire at the rigging of B, ſhall have carried away any of the principal ſtays, 8 or 10 windward ſhrouds, or foretopmaſt, or any other rigging, though of much leſs conſequence, but, at the ſame time, without having wounded a ſingle man of the ſhip B; and ſuppoſe a 2d ſhip, conſort to F, receiving ſuch another ſhip as B, and by firing at her hull only, ſhall, without other damage, have killed 30 or 40 of her men: In this critical juncture, when F and her conſort are deſirous of avoiding a cloſe engagement, it is evident that the ſhip at B, which has loſt part of her rigging, is more completely diſabled from cloſing with them than the other ſhip, whoſe rigging is entire, though ſhe may have loſt 100 of her men.

143. It has been often ſaid, that ſome particular ſhip has been expoſed in battle to the cannonade of 3, 4, or even 5 ſhips, all extended in the enemy's line, and all bearing upon her at one and the ſame time; but this can never have been the caſe, but when the ſhip ſo expoſed was at a very great diſtance. Let I, H, F, H, I, (*Pl.* CCXL, *fig.* 31.) repreſent 5 ſhips extended in line of battle ahead at the diſtance of one cables length, or 240 yards, from each other; let the length of each ſhip be 40 yards, ſo that the whole ſpace between head and head of any two adjacent ſhips is 280 yards; and let the perpendicular line FK, proceeding right out from the beam of the middle ſhip F, to the diſtance of ſix cables length, or 1440 yards, be divided into ſix equal parts: It is evident, from inſpection, that a ſhip ſtationed at the point E of the line FK, 720 yards diſtant, cannot for any length of time be expoſed to the fire of more than the centre ſhip F of the fleet I, H, F, H, I. For ſuppoſing the ſhips H, K, ahead and aſtern of F, to be able to bring their broadſides to bear on E, (a ſuppoſition which, if the line be cloſe-hauled, cannot be made of the headmoſt of thoſe ſhips), it is evident, that by putting themſelves in poſitions proper for that purpoſe, the ſhips H, H, will not only diſorder their own line, but alſo leave, the one her head, and the other her ſtern, expoſed to a raking fire from their oppoſites B, B, in the enemy's line. But if the opponent ſhip cannot well be expoſed to the fire of the two ſhips H, H, at the point E, ſhe muſt be ſtill leſs expoſed at the point C, 480 yards diſtant; and it will be almoſt impoſſible for the ſhips H, H, to touch her at the point G, 240 yards, or one cable's length, diſtant.

144. But one cable's length aſunder is too ſmall an allowance for accidents that may happen by the ſhips I, H, F, H, I, extended in the line of battle ahead. Therefore let us ſuppoſe the three ſhips, which are ſaid to be at once upon a ſingle opponent, to be ſtationed at I, F, I, at the diſtance of two cables length, or 480 yards from each other. Then it is evident that the opponent ſhip cannot now be more expoſed at the point K, at the diſtance of 1440 yards, than ſhe was on the former ſuppoſition, at the point E, 720 yards diſtant; and if we ſuppoſe the line of battle to be formed at one and an half cable's length aſunder, ſhe muſt be at L, diſtant 1080 yards, before ſhe can be annoyed even to this degree by the three hoſtile ſhips at once. Hence we may conclude, that if one ſhip has any time been expoſed at once to the fire of 5, 4, or even 3 ſhips of the enemy's line, ſuch ſhip muſt have been at a very great diſtance, and in no great danger.

145. Our author next proceeds to the principles neceſſary to be known for enabling us to judge of the different modes of bringing great fleets to action. For this purpoſe he ſuppoſes a fleet of 10, 20, or more ſhips, of 80 guns each, extended in the line of battle to leeward, and lying to at F.

(F

Pl. CCXXXIX, *fig.* 32.) with the intention of voiding an attack; whilſt another fleet at B, of qual number and force of ſhips, alſo extended in ine of battle, 3 or 4 miles to windward, is deſirous of making an attack, and coming to cloſe ction on equal terms with the fleet F. In this iſpoſition of the two fleets, ſhould that to windward run down headlong ſhip for ſhip on its opponent, as in *Figs.* 27 and 30, *Pl.* CCXXXVIII, it is evident, from what has been ſaid in the beginning of this ſection, that each individual ſhip of the weather fleet might be completely diſabled before it could poſſibly come to cloſe action with the fleet to leeward. But let it be ſuppoſed that the commander of the weather fleet B, though his ſhips have been much diſabled in their rigging during their courſe *a a a* from windward, (*Pl.* CCXL. *fig.* 33.), has made them bring to at a great diſtance, from whence he can hurt F; is it to be expected that F, whoſe deſire has always been to avoid a cloſe engagement, and who has already diſabled the ſhips of B, will patiently lie ſtill, or wait until B ſhall have time to diſable him in his turn? No ſurely. While enveloped in his own ſmoke, as well as that of his enemy, he will bear away unhurt to a new ſtation G, and there remain out of the reach of B's cannon ſhot, who muſt repair his rigging before he can attempt a ſecond attack.

146. Again, ſuppoſe that B, in place of going headlong and endwiſe down, were to run down in an angular courſe, or *laſking* as it is called; it is evident from *fig.* 34, *Pl.* CCXXXIX, that ſhould any ſhip in this angular line come to be crippled, her way being ſtopped might of conſequence occaſion a confuſion amongſt the ſhips next aſtern to her, ſome running to leeward and others to windward of the diſabled ſhip; and thus the time be loſt for affording the neceſſary ſupport to the ſhips ahead, and now ſo far ſeparated from their companions. Should it be ſaid, that a ſtoppage of one ſhip ahead will not neceſſarily produce a ſtoppage of every ſhip aſtern, becauſe they may go to leeward of the diſabled ſhip; we anſwer, that the ſhips ahead in the van A (*Pl.* CCXXXVIII, *fig.* 35, N° 1.) may be now engaged, and of conſequence not having much headway, may be ſaid to be ſtationary; therefore every ſhip aſtern, if ſhe ſhall attempt to bear down, as at D, D, from being confined to a determined courſe, muſt be brought into the poſition of being raked when coming down before the wind, as in *figs.* 37, *Pl.* CCXL, and 30, *Pl.* CCXXXVIII, and conſequenly of being completely diſabled long before ſhe can get cloſe enough alongſide of the enemy.

147. Again, the headmoſt ſhips, or van of B, having attained their ſtation at A, that is, abreaſt of the van of F, (*Pl.* CCXXXVIII, *fig.* 35, N° 1.), and having begun the cannonade, may we not ſuppoſe that F, whoſe conduct or deſire has always been to ſave his ſhips, has inſtructed the commanders of thoſe in the van of his fleet to withdraw from danger as ſoon as they begin to feel the effects of a canonade? and if ſo, may not thoſe ſhips, as ſoon as they have thrown in their fire upon the van of B, bear away in ſucceſſion as at H, followed indeed by the whole ſhips of F's fleet, which, having poured in their fire upon the van of B, may form a new line of battle two or three miles to leeward at I I, (*Fig.* 35, N° 2.), and there be in readineſs to receive a ſecond attack, if B ſhall be ſo imprudent as to attempt it? And is it not farther evident, that if any one or more ſhips of the ſquadron of F ſhall be crippled, they will have it in their power to quit their ſtation, being covered with ſmoke, at any time, and to fall to leeward as at G, where they will be in ſafety?

148. To illuſtrate this ſtill farther, let B (*Plate* CCXL, *fig.* 36.) repreſent a fleet putting before the wind, each ſhip with an intent, when brought to at a determined diſtance at A, to take up her particular antagoniſt in the line of the enemy F to leeward; and let F be ſuppoſed at reſt, without any motion ahead: There ſeems to be no difficulty in conceiving, that while the alternate ſhips of F's line, under cover of the ſmoke, withdraw from battle to GGG, the intermediate ſhips left behind them in the line will be ſufficient to amuſe even the whole of B's fleet, till the ſhips G ſhall form a new line HH as a ſupport from the leeward. In ſuch caſe B, after being diſabled, as he muſt be, and not having foreſeen the manœuvre, will neither be able to prevent the intermediate ſhips with which he is engaged from bearing away to join their friends, nor, were he able, would it be adviſable to follow them; for the ſame manœuvre with equal ſucceſs can again and again be repeated.

149. To ſhow the relative motion of both fleets, let F (*Fig.* 37.) be a fleet of 12 ſhips, drawn up in line of battle, at one cable's length or 120 fathom's aſunder; and let the length of each ſhip from the end of the jib-boom to the ſtern be 36⅔ fathoms; the whole fleet will then occupy a ſpace of two Engliſh miles; alſo, let its rate of ſailing be four knots an hour in the direction FG, ſo that in the ſpace of an hour it may have moved from F to G, four miles diſtant from its former poſition. Let B be the opponent fleet, conſiſting alſo of 12 ſhips, and four miles to windward; and let the point A be 440 yards, or one quarter of a mile, right to windward of the point G. Then if B, by bearing away in the direction BA, ſhall arrive at the point A at the ſame inſtant that F, the fleet to leeward, has arrived at the point G, the motion of the fleet B will have been at the rate of 5½ miles nearly per hour; and the angle contained between the direction of its line of bearing and preſent courſe 43° 9′, or nearly 4 points. For in the right-angled triangle ABM are given $BM = 4$ miles, and $AM = 3\frac{3}{4}$ miles. Now $BM = 4$ miles $: AM = 3\frac{3}{4}$ miles $: : R : \tan. ABM = 43^\circ 9'$, and $R : \sec. ABM. 43^\circ 9' : : BM = 4$ m. $: AB = 5{\cdot}483$ miles.

150. Again, if F, as in *fig.* 38, by carrying more ſail, ſhall move at the rate of ſix miles an hour, that is, from F to G; then B, having his courſe made thereby the more ſlanting, will have juſt ſo much the greater difficulty of keeping his ſhips in line abreaſt while coming down to the attack: For the leading ſhip meeting with no obſtruction in her courſe, will puſh on; whereas every accident of obſtruction accumulating, as it happens to each ſhip progreſſively, the rear, being affected in the greateſt degree, will for that reaſon be left the farther aſtern. But, from the very form of this

of the enemy ſtanding on the larboard tack to leeward, and going off as before at F, and a fleet of ſhips in a collected poſition to windward, as at B (*fig.* 40.); and ſuppoſe that the enemy F, perceiving the fleet B pointing an attack againſt his rear, in place of keeping on his courſe upon the ſame tack, ſhould veer, and endeavour to paſs on contrary tacks to leeward (for it will not be admitted that he can get to windward); what will then be the effect?

164. Is it not evident, that the headmoſt ſhips of F muſt be forced to leeward by the fleet B obſtructing his line of direction, or the line of his courſe? that they muſt be forced to begin an attack at any diſtance B may chooſe? that they may receive ſuch damage as will ſtop their way? that their way being ſtopped, will of courſe be an obſtruction to the next aſtern; or that theſe ſubſequent ſhips, to prevent this ſtop, muſt bear away to leeward of their crippled ſhips, as at G (*fig.* 45, *Pl.* CCXXXIX.), which will not only prevent theſe ſhips from damaging the headmoſt ſhips of B, but will give time and opportunity to B to bring down his windward ſhips to fall in, either ahead or aſtern, that is, to the right or left of his headmoſt ſhips A, and oppoſe ſhip for ſhip of the enemy upon equal terms? But ſhould none of the headmoſt ſhips of the ſquadron F be crippled, that is, ſhould F paſs B without reach of cannon ſhot, which undoubtedly he will do if he can; ſtill, while bearing away, he may be forced to ſuffer a diſtant cannonade, ſhip with ſhip on equal terms, whether he veers and gets back upon his former tack, as at G in *fig.* 46, *Pl.* CCXL, or continues to run before the wind, as at P in *fig.* 47. But if F perſiſts to paſs on a contrary tack to leeward, and without reach of cannon-ſhot, it is evident, whether he put right before the wind, or run off ſhip by ſhip as he beſt can, that B muſt at ſome time or other come up with his rear.

165. So far the attack has proceeded with the wind fixed in one and the ſame quarter. To make the propriety of it the more apparent, it will be neceſſary to inquire, What might be the effect produced by a change of wind, ſhould that take place during the action? For this purpoſe, let the opponent fleets be placed in ſome of the preceding poſitions, repreſenting the attack upon the three ſternmoſt ſhips of the enemy, as in *fig.* 48, in which the fleet deſirous of making the attack is repreſented in four diviſions, as at B, B, B, A, and F, the fleet deſirous of avoiding the attack, at the hazard of abandoning his three ſternmoſt ſhips at G.

166. In the commencement of the attack, let us ſuppoſe the wind to be N. and the ſhips going two points free on the larboard tack, or ſtanding E.; and ſoon after the commencement let the wind be ſuppoſed to veer round to the W.; then it is evident, by the diſpoſition of the two fleets, that the fleet F, by ſuch a change, will have acquired no advantage whatever; on the contrary, it will thereby be thrown juſt ſo much the farther to leeward.

167. Again, if the wind, by taking an oppoſite courſe, ſhall ſhift a-head and come round by the eaſtern quarter to L, the admiral of the fleet F will not have it in his power to avail himſelf of this circumſtance, provided the commander of B, continually carefully to watch his motions, and feeling the impulſe of the veering wind, ſhall ſtretch his ſhips, as at OO, to the windward of the three ſhips at G, ſeparated from F's fleet, and at the ſame time to the leeward of the main body of that fleet. This will be apparent from *figs.* 49 and 50, *Pl.* CCXLI. which exhibit the two fleets, after this manœuvre, both on the larboard and ſtarboard tack.

168. Let the wind be ſuppoſed to wear round gradually from the E. towards the S. and from thence to the W. and then quite round the compaſs; then F being ſuppoſed to have gained the wind, it will be in his power to maintain it, and make a circular courſe to windward of B: but as he can be attended all the while by the fleet B, who will cut him off to leeward, he never will be able to recover his three ſhips, ſuppoſed to be cut off.

169. Laſtly, if the wind in changing ſhall in an inſtant ſhift in direct oppoſition to where it was when the attack began, that is, from N. to S.; then and in that caſe, before it can be judged whether ſuch change ſhall be favourable for F or not, it will be neceſſary that the relative ſituation of the two fleets ſhould be determined, ſuch as it was when the change took place. For example, if the headmoſt ſhips of the fleet F, that is, if his van and centre ſhall have ſeparated at any conſiderable diſtance from his rear, and ſhall, in conſequence of this mode of attack, have advanced to a poſition as repreſented in *fig.* 51, it is evident, that F, though by this change he ſhall have got to windward, will not yet be able to avail himſelf of this ſeeming advantage, the fleet B having it ſtill in their power to cut him off from his three ſhips.

170. On the other hand, if this inſtantaneous change of wind, in direct oppoſition, ſhall have taken place more early in the action, that is, when the poſitions of the two fleets ſhall be ſuch as repreſented in *fig.* 48, *Pl.* CCXL, (the fleet B in the poſition of four diviſions B, B, B, and A, and the enemy in the poſitions F and G); then F, who before was to leeward, by this inſtantaneous change of wind from the N. to the S. having now got to windward of every diviſion of the fleet B, is it not evident, that it may be practicable for him to carry aſſiſtance to his three ſhips at G in the rear, and perhaps even to cut off ſome of B's ſhips at A, if they do not with all ſpeed bear away to put themſelves under the protection of their friends B to leeward? But whether F ſhall attempt to effect this manœuvre by veering his ſhips in the line, or, what ſeems moſt eligible, by making his ſhips tack, as it is to be preſumed that his three ſhips, which have been ſome time engaged, muſt be conſiderably crippled, and not able to make ſufficient ſail; while endeavouring to bring them off, it will be difficult for him to prevent being drawn into a general and cloſe engagement, which, by the ſuppoſition, he has all along endeavoured to avoid.

Sect. III. *Of* Partial Breezes *of* Wind.

171. It often happens at ſea, that when two ſhips are in ſight of each other, one of them will be ſailing at a conſiderable rate, being favoured

with

Naval Tactics.

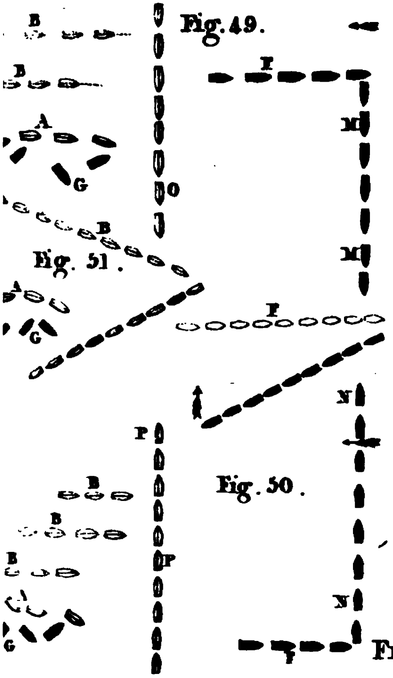
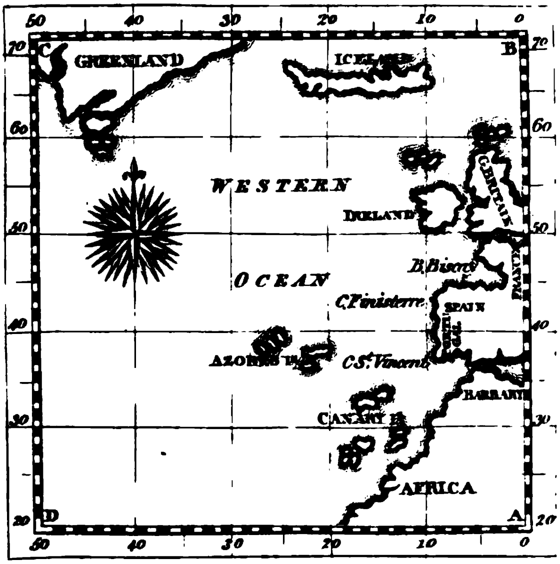


Fig. 49.

Fig. 51.

Fig. 50.

Fig. 2.



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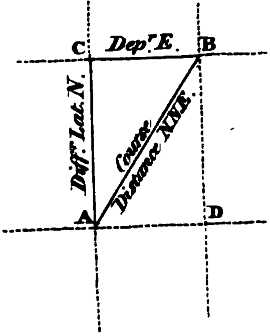

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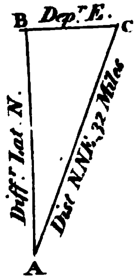


Fig. 1.

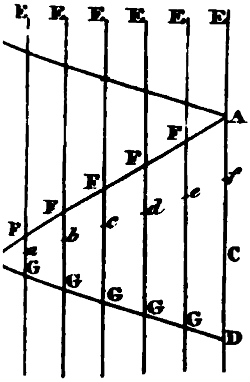


Fig. 3

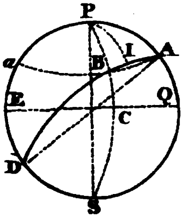


Fig. 4.

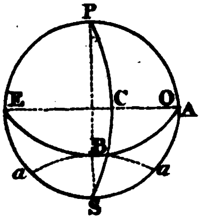


Fig. 5.

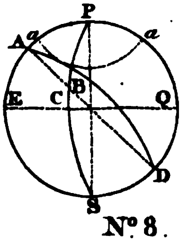


Fig. 6.

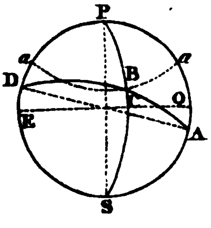
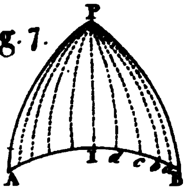


Fig. 7.



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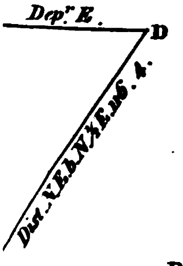

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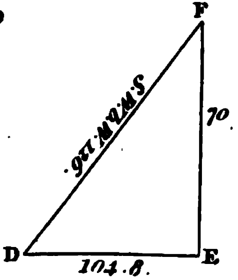

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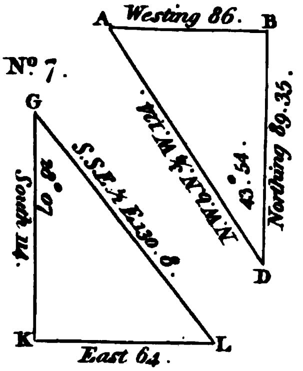

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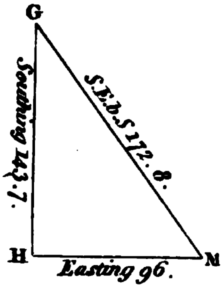


T. Clark Sculpᵗ. Edinʳ.

with a breeze of wind; while the other at the ſame time is lying becalmed, having no other motion than what ſhe receives from the tide or a current, if any, or from the ſwell of the ſea. As this may be the caſe with reſpect to two adverſe fleets when in ſight of each other, that fleet which has the advantage of the wind will evidently uſe every poſſible method to proſecute the advantage that may reſult from it. Thus if the fleet, deſirous of making the attack be favoured with a breeze of wind, while the other fleet at the ſame time is lying becalmed, it is evident that the commander of this fleet will endeavour to get as near the opponent fleet as poſſible; whereas, if the fleet wiſhing to avoid an engagement, be favoured with the wind, the other lying becalmed, then that fleet will avail themſelves of that opportunity of making their eſcape.

172. If the attack upon the three ſternmoſt ſhips ſhall have commenced before this partial breeze in favour of the fleet purſued has taken place; then the variety of poſitions in which the two fleets may be affected is ſo great, and the reſulting conſequences ſo numerous, that it would be an endleſs taſk to give a ſeparate deſcription of each. In the mean time, therefore, as it is imagined nothing in ſuch inveſtigation will be found that can materially affect the general iſſue; and ſince no breeze whatever can favour the fleet F, ſo as to enable it to ſail round and round the fleet B, which all the while is ſuppoſed to be lying becalmed, it will not be too much to ſay, that *this partial breeze in favour of the fleet F, taking place after the attack began, although it may facilitate the eſcape of his van and centre, will not avail him much in the recovery of the three ſhips in his rear;* perhaps not in any caſe as yet exhibited, excepting this one, where the wind in one inſtant had changed in direct oppoſition.

173. Now let, as formerly, the attack be commenced before the partial breeze in favour of the leet purſued has taken place, but that the wind was inſtantaneouſly ſhifted in direct oppoſition; hen, even in this caſe, the ſame breeze which would favour F (*fig.* 48.) in the attempt to bring off his three ſhips, would at the ſame time favour he eſcape of the ſhips of B at A, as formerly deſcribed. This partial breeze would require to be of conſiderable duration, otherwiſe F, in thus ttempting to bring off his three ſhips, crippled as hey will be, muſt hazard a general engagement, in like manner as already deſcribed.

174. Mr Clerk employs a ſection of his book o ſhow the propriety of his propoſed attack from windward, in places where the hoſtile fleets are liable o encounter winds blowing in contrary directions t the ſame inſtant; but as this caſe ſeldom happens, we ſhall refer our readers to the work itſelf, and onclude this article with ſome other methods of ttack, which have been ſuggeſted as improvements of thoſe commonly followed.

175. I. It has been propoſed that the attack hould be made with the greater part bearing own before the wind upon the ſix ſternmoſt hips of the enemy. It is, however, evident, that hips, by making the attack in this manner, muſt e expoſed, without a poſſibility of return, to as many broadſides from each of theſe ſix ſhips as can be got ready during a courſe of two miles. Hence, as the ſhips making the attack will aſſuredly be diſabled before they can have it in their power to hurt the enemy, this mode of attack cannot be proper.

176. II. It has alſo been imagined, that ſome part of the force choſen to make the attack ſhould be ſent to leeward as well as to windward of the three ſhips determined to be attacked. But the danger ſuppoſed, of ſhot paſſing over the enemy's ſhips, and ſtriking thoſe of friends, may be an objection to this mode.

177. III. Others have been of opinion, that the headmoſt ſhip choſen to make the attack ſhould come cloſe up alongſide of the ſternmoſt of the enemy, and having delivered her fire, puſh along the line as far as poſſible, which may be ſuppoſed to be the ſixth ſhip of the enemy; and as it is evident that this firſt ſhip may have received ſix broadſides, that is, a broadſide from every one of the ſix ſhips of the enemy during her courſe in paſſing them, it has been thought poſſible that the other five ſhips, by following cloſe after her, may attain their ſtations, each abreaſt of her oppoſite, without having received a greater number of broadſides than they have had it in their power to return; and therefore, that by this mode the number of ſhips to be attacked will be determined. For as many ſhips as the leading ſhip will be able to reach, as many will the attacking fleet be able to carry.

178. IV. Again, let it be ſuppoſed, as in the former caſe, that the fleet making the attack has been brought up to action in a collected manner, but ſubdivided only ſo far as the ſervice may require, and that the leeward diviſions ſhall be more particularly deſtined for the immediate attack, while, at the ſame time, the body of the fleet keeping to windward ſhall be ſuppoſed attentive to give the neceſſary ſupport where required; then let it be ſuppoſed, that the headmoſt ſhip making the attack, having been ſoon crippled, ſhall not have been able to puſh farther than the third or fourth ſhip of the enemy's line, is it not eaſy to conceive, it is aſked, that ſome one or more of the ſhips to windward, attentive to ſupport and ſupply her place, may bear down on the fourth ſhip of the enemy, under cover of the ſmoke, throw in her fire, and puſh on to the fifth or ſixth ſhip, or perhaps farther; and that, ſo far as this freſh ſhip, or a ſecond freſh ſhip, may be able to puſh, ſo many ſhips of the enemy may be expected to be carried? For whatever ſhips of the enemy can be got abreaſt of at a proper diſtance, *may be diſabled, and therefore commanded,* by the numerous freſh ſhips kept to windward for this purpoſe. In all theſe various methods of attack, the fleet making the attack is ſuppoſed to ſail faſter than the other, or at leaſt to come up with it; and that ſo ſoon as the ſhips are engaged, their velocity will conſequently be diminiſhed. That being premiſed, a more proper mode of attack than any of the preceding will perhaps be as follows:

179. V. The firſt or headmoſt of the ſhips intended to make the attack is to range alongſide of the enemy, and preſerve that ſtation. The 2d ſhip is to make all poſſible ſail to luff up and paſs the firſt ſhip, which is now ſuppoſed to be engaged, and get alongſide of the laſt but one of the enemy,

enemy, which ſhe is to engage. In like manner, the 3d of the attacking ſhips is to get alongſide of the laſt but two of the enemy, whom ſhe is to engage; and if it be deemed expedient, the fourth, &c. ſhip may be engaged. It is, however, evident that this method can only be practiſed when the wind is briſk, and that a calm, in conſequence of a vigorous cannonade, may render the attack upon more than 3 or 4 of the enemy's ſhips impoſſible.

180. In all the different attacks upon the rear, it has by ſome been thought a great object, if practicable, to throw a raking fire into the rear of an enemy's line of battle, by ſhips detached for that purpoſe. For if ſhot, as has been ſaid, can take effect at a diſtance of two miles, from this poſition it will ſurely reach the ſixth ſhip, if the enemy's line ſhall be formed at two cables length aſunder; and if formed at one cable's length aſunder, it may reach and may cripple the twelfth ſhip.

181. We have thus given a curſory view of Naval Tactics in its preſent improved ſtate; and ſhall take leave of the ſubject, with earneſtly recommending to our nautical readers Mr Clerk's Eſſay, which has met the approbation of every officer who is acquainted with the principles and practice of naval war.

NAVAN, a borough, and poſt town of Ireland, in the county of Meath, about 23 miles NW. of Dublin, on the Boyne. It conſiſts of two chief ſtreets, which interſect each other at right angles.—The Tholſel, or town-houſe, is a handſome ſtone building. This place was formerly in great repute, and walled in by Hugh de Lacy. An abbey for regular canons, dedicated to the Virgin Mary, was erected here; and either founded or re-edified by Joceline de Angulo or Nangle, about the end of the 12th century. In the burial ground are the remains of many ancient tombs, with figures in alto relievo; and a barrack for one troop of horſe is built on the ſite of the abbey. Here are four fairs held.

NAVAR. See Lethnot.

NAVAREDONDA, two towns of Spain, in Leon.

NAVARIN, or NAVARINO, a populous town of European Turkey, on the W. coaſt of the Morea, and Gulf of Zonchio, with an excellent harbour; 72 miles SW. of Argos, and 88 SW. of Corinth. Lon. 21. 40. E. Lat. 37. 2. N.

(1.) **Navarre**, Martin Azpilcueta, ſucceſſively profeſſor of juriſprudence at Toulouſe, Salamanca, and Coimbra, was born at Veraſoa, near Pampeluna, in *Navarre*, (whence his aſſumed name) in 1494; and ſtudied at Cahors and Toulouſe. He was conſulted from all quarters as an oracle of the law. Pius V. appointed him aſſeſſor to cardinal Francis Alciat; and Gregory XIII. was very familiar with him. He was univerſally eſteemed, not only for his knowledge, but alſo for his probity and virtue. His temperance preſerved to him a vigorous conſtitution; and at a very advanced age his genius was equal to the ſevereſt ſtudy. At the age of 80, he ſet out for Rome, to defend his friend Bartholomew Carewza, Abp. of Toledo, who had been charged with hereſy by the Inquiſition at Rome. His economy enabled him to give liberal aſſiſtance to the poor. His charities, indeed, were ſo very great, that his mule, it is ſaid, would ſtop as ſoon as ſhe perceived a beggar. He died at Rome in 1586, aged 92. His works were collected and printed in 6 vols folio at Lyons in 1597, and at Venice in 1602. He was uncle by the mother's ſide to St Francis of Sales. See Sales, N° 3.

(2.) **Navarre**, Peter, an officer of eminence in the 16th century, particularly celebrated for his dexterity in directing and ſpringing mines. He was born at Biſcay, of low extraction. Paul Jove affirms, from his own mouth, that he was firſt a ſailor, but afterwards went to Italy, when he became footman to the cardinal of Arragon. He afterwards inliſted as a ſoldier in the Houſtine army; and having ſerved there for ſome time, went to ſea again, and diſtinguiſhed himſelf by his courage. Gen. Gonſalvo de Cordone employed him in the war againſt Naples, and made him a captain. Having contributed greatly to the taking of the city by ſpringing a mine, the emperor rewarded him with the earldom of Alveto, in that kingdom, and gave him the title of *count of Navarre*. Having the command of a naval expedition againſt the Moors in Africa, he was at firſt very ſucceſsful, and took Oran, Tripoli, and ſome other places; but being afterwards ſhipwrecked on the iſland of Gerbes, the great heats and the Mooriſh cavalry deſtroyed a part of his army. He was equally unfortunate in Italy; he was taken priſoner at the battle of Ravenna, in 1512, and languiſhed in France for two years. Finding that the king of Spain, who had been prejudiced againſt him, would do nothing for his ranſom, he went into the ſervice of Francis I. who gave him the command of 20 companies of infantry. He diſtinguiſhed himſelf in ſeveral ſucceſsful expeditions, until 1522, when having been ſent to the relief of the Genoeſe, he was taken by the Imperialiſts. They conducted him to Naples, where he remained a priſoner for three years in the caſtle of Œuf. He was releaſed by the treaty of Madrid, and fought at the ſiege of Naples under Laulric in 1528: but being again made priſoner at the retreat from Averſa, he was ſent a 2d time to the caſtle of Œuf. Here the prince of Orange, having, by order of the emperor, cauſed ſeveral perſons of the *Angevine* faction to be beheaded, our hero would undoubtedly have ſuffered the ſame fate, if the governor, feeling for the misfortunes of ſo great a man, had not ſaved him. He died a natural death;—but ſome pretend that he was ſtrangled in his bed, having arrived at a very advanced age. Paul Jove and Philip Thomaſi have written his life. This laſt informs us that he was of a tall ſize, had a ſwarthy countenance, black eyes, beard, and hair.

(3.) **Navarre**, an ancient kingdom of Europe, between France and Spain, erected ſoon after the invaſion of the Moors; bounded on the NE. by the Pyrenees, E. and S. by Arragon, and W. by Old Caſtile and Biſcay; about 80 miles long from N. to S. and 75 broad. The name is a contraction of *Nava Errea*, which in the language of its ancient inhabitants the Vaſcones, ſignifies *a land of valleys*. It was governed by its own kings, from A. D. 728, till 1512, when Ferdinand V. K. of Arragon and Caſtile, conquered it, and annexed the greater part of it to Spain. (See SPAIN.) Hence it was divided into *Upper* and *Lower* Navarre.

I. NAVARRE, LOWER, a late province of France and for ſome time a diſtinct kingdom; comprehending 6 *merindads* or bailiewics of the ancient kingdom, which were all that were left to the princeſs Catharine and her huſband John Albret, by Ferdinand V. They were ſucceeded in this ſmall monarchy by their ſon, John; whoſe daughter Joanna was married, in 1548, to Anthony of Bourbon, who, in her right, became K. of Navarre; and their ſon, Henry the great, afterwards ſucceeding to the crown of France, (ſee FRANCE, § 42.) Lower Navarre and Bearn were annexed o France by his ſon Lewis XIII. in 1620. St Jean Pie de Port was capital. It now forms the lepartment of the Lower Pyrenees.

II. NAVARRE, UPPER, a province of Spain, containing the greater part of the above kingdom. It s 54 miles long from NE. to SW. and 45 broad, rom NW. to SE. It abounds in ſheep and catle; game of all kinds, as boars, ſtags, and roebucks; and in wild fowls, horſes, and honey; yielding alſo ſome grain, wine, oil, and a variety of minerals, medicinal waters, and hot baths. Some of the ancient chiefs of this country were called *Sobrarbores*, from the cuſtom which prevailed among ſome of thoſe free nations of chooſing and ſwearing their princes under ſome particular tree. Pampeluna is the capital.

(4.) NAVARRE, NEW, a province of New Mexico, bounded on the E. by New Mexico Proper, nd New Biſcay; S. by Culiacan; W. by the Gulf of California and N. by an unknown ountry. It was conquered by the Spaniards in 552, and was inhabited by various Indian tribes, t Juan de Cinaloa is the capital.

NAVAS, or NAVAS DE TOLOSA, a town of pain, E. of Mount Sierra Morena; famous for a ictory obtained by the Chriſtians over the Moors 1212.

NAVAZZA, and iſland between Cuba and Hiſaniola, abounding with guanas.

NAUCLEA, in botany, a genus of the Monoynia order, belonging to the pentandria claſs of lants.

NAUCLERUS, John, a gentleman, deſcendd of a noble family of Suabia, was provoſt of he church of Thuringia, and profeſſor of law in he univerſity of that city.—His original name was ERGEAU, which in German ſignifies a ſailor; nd which he changed into *Nauclerus*, a word of he ſame ſignification in Greek.—He was alive in 501. He wrote a Latin Chronicle from Adam o A. D. 1500, which was continued by Baſilius nd Surius to 1564. It is very accurate, but is hiefly valued for what regards the occurrences of the 15th century. It was printed at Cologne in folio in 1564 and 1579.

NAUCRARI, among the ancient Athenians, were the chief magiſtrates of the Δημοι, boroughs or townſhips, called Ναυκραριαι; becauſe each was obliged, beſides two horſemen, to furniſh one ſhip for the public ſervice.

(1.) NAUCRATES, a Greek poet, who was employed by ARTEMISIA to write a panegyric upon Mauſolus.

(2.) NAUCRATES, an orator who endeavoured to alienate the cities of Lycia from the intereſt of Brutus.

NAUCRATIS, a city of Egypt on the left ſide of the Canopic mouth of the Nile. It was celebrated for its commerce, and no ſhip was permited to land at any other place, but was obliged to ſail directly to the city, there to depoſit its cargo. It gave birth to ATHENÆUS.

NAUCRATITES NOMOS, in ancient geography, was, according to Pliny, a diviſion of the Delta, ſo called from the above town; but Ptolemy compriſes it under the Nomos Saites.

NAUCYDES, a ſtatuary who lived about A. A. C. 400.

(1.) NAUDE, Gabriel, was deſcended of a reputable family, and born at Paris, Feb. 12, 1600. His parents, obſerving his fondneſs for reading, ſent him to a religious community, to learn grammar and the principles of Chriſtianity. Thence he was removed to the univerſity, where, having acquired claſſical learning and philoſophy, he was created M. A. very young. He then ſtudied phyſic, and Henry De Meſmes, preſident à mortier, hearing his character, made him keeper of his library, and took him into his family; which furniſhed him both with means and leiſure to improve himſelf as he could wiſh. In 1626, he went to Padua, but the death of his father called him back to Paris before the end of the year. In 1628 the faculty of phyſic appointed him to make the cuſtomary diſcourſe on the reception of licentiates; which he performed with great applauſe. In 1631, Card. Bagni made him his librarian and Latin ſecretary, and carried him with him to Rome, where he continued till the cardinal's death, July 24, 1641; and in the interim made an excurſion to Padua, to take his degree of M. D. Lewis XIII. made him his phyſician, on March 25, 1633. He was, however, detained in Italy by advantageous offers made to him by Card. Barberini. But when Card. Richelieu ſent for him to be his librarian, he immediately returned to Paris, in March 1642; but Richelieu dying in Dec. following, he ſucceeded to the like poſt under Mazarine, for whom he formed a moſt rich library, which he raiſed, from the firſt volume, in 7 years, to the number of 40,000. The Cardinal, however, only gave him two ſmall benefices; viz. a canonry of Verdun and the priory of Artige in the Limoſin; not worth above 1200 livres a year; but he met with a ſtill greater diſappointment in ſeeing this library, which he had collected with ſo much pains, totally diſperſed. Upon the diſgrace of Mazarine, it was ſold; and Patin, in a letter of March 5, 1651, ſays, that Naude bought all the books in phyſic for 3500 livres. Chriſtina, Q. of Sweden, next made him her librarian: but he ſoon grew out of humour with his reſidence in Sweden; the manners of the people did not pleaſe him; and ſeeing France become more quiet than it had been, he quitted Sweden, loaded with preſents from the queen, and ſeveral perſons of diſtinction: but the fatigue of the journey threw him into a fever, which obliged him to ſtop at Abbeville; where he died July 29, 1653. He was very regular in his conduct, never drinking any thing but water. Study was his principal occupation, in ſo much that he has been ſtyled a *Helluo librorum*, or a *gormandizer of books*. He ſpoke his mind with great freedom, and ſometimes even upon religious ſubjects; but the Chriſtian ſentiments in which he died ſhowed that his heart had no ſhare in thoſe free expreſſions and philoſophical railleries, which paſſed between him, Guy Patin, and Gaſſendi. He wrote a great number of books, a catalogue of which may be ſeen in Niceron's Memoires, tom. ix.; but Voltaire ſays, that "his *Apologie des grands Hommes accuſes de Magie* is almoſt the only one which continues to be read."

(2.) Naude, Philip, a French proteſtant writer, born at Metz, in 1654. On the revocation of the edict of Nantes, he went to Berlin, where he died in 1729. He publiſhed a Treatiſe on Geometry, and ſeveral other works.

NAUDOWESIES, a nation of N. American Indians, who inhabit the lands between Lakes Michigan and Superior.

NAUE. See Nun, N° 1.

(1.) * NAVE. *n. ſ.* [*naf*, Saxon.] 1. The middle part of the wheel, in which the axle moves.—

Out, out, thou ſtrumpet fortune! all you gods
In general ſynod take away her pow'r;
Break all the ſpokes and fellies from her wheel,
And rowl the round *nave* down the hill of heav'n,
As low as to the fiends. *Shak. Hamlet.*

—In the wheels of waggons, the hollows of the *naves*, by their ſwift rotations on the ends of the axle-trees, produce a heat ſometimes ſo intenſe as to ſet them on fire. *Ray.* 2. [From *navis*, *nave*, old Fr.] The middle part of the church diſtinct from the aiſles or wings.—It comprehends the *nave* or body of the church, together with the chancel. *Ayliffe's Parergon.*

(2.) Nave, (§ 1, *def.* 2.) in architecture, is the body of a church, where the people are diſpoſed, reaching from the balluſter, or rail of the door, to the chief choir. Some derive the word from the Greek, *ναὸς*, *a temple*; and others from *ναυς*, *a ſhip*, as the roof of a church bears ſome reſemblance to a ſhip.

(1.) * NAVEL. *n. ſ.* [*nafela*, *navela*, Saxon.] 1. The point in the middle of the belly, by which embryos communicate with the parent.—

Imbraſides addreſt
His javeline at him, and ſo ript his *navel*. *Chapm.*
As children, while within the womb they live,
Feed by the *navel*: here they feed not ſo.
Davies.

—The uſe of the *navel* is to continue the infant unto the mother, and by the veſſels thereof to conveys its aliments. *Brown.*—

Me from the womb the midwife muſe did take,
She cut my *navel*, *Cowley.*

—Some animals will hunt for the teat before they are quite gotten out of the ſecundines, and parted from the *navelſtring*. *Derham.* 2. The middle; the interiour part.—

Being preſt to the war,
Even when the *navel* of the ſtate was touch'd,
They would not thread the gates. *Shak. Coriol.*
Within the *navel* of this hideous wood,
Immur'd in cypreſs ſhades, a ſorcerer dwells.
Milton.

(2.) Navel, in anatomy, (§ 1, *def.* 1.) the centre of the lower part of the abdomen; being that part where the umbilical veſſels paſſed out of the placenta of the mother. See Anatomy, § 266.

(1.) * NAVELGALL. *n. ſ.*—*Navelgall* is a bruiſe on the top of the chine of the back, behind the ſaddle, right againſt the *navel*, occaſioned either by the ſaddle being ſplit behind, or the ſtuffing being wanting, or by the crupper buckle ſitting down in that place, or ſome hard weight or knobs lying directly behind the ſaddle.

(2.) Navel-gall. See Farriery, *Part* IV, *Sect.* IX.

NAVELSBY, or Naseby. See Naseby.

Navel-string. *n. ſ.* See Umbilical, § 2.

(1.) * NAVELWORT. *n. ſ.* [*cotyledon.*] A plant. It hath the appearance of houſeleek. *Miller.*

(2.) Navel-wort, in botany. See Cotyledon.

(3.) Navel-wort, False. See Crassula.

(4.) Navel-wort, Venus's. See Cynoglossum.

(5.) Navel-wort, Water. See Hydrocotyle.

(1.) NAVER, or Loch Navern, a lake of Scotland, in Sutherlandſh. 6 m. long and 3 broad.

(2.) Naver, or NAVERN, } the largeſt river in Sutherlandſhire, which riſes from the above lake, and after running about 30 miles through the diſtrict of Strathnaver, which is named from it, falls into the ſea at Strathy-head.

NAVESINK, a river of New Jerſey, which riſes in Monmouth county, and running E. falls into a bay of the ſame name, S. of Sandy Hook.

(1.) * NAVEW. *n. ſ.* [*napus*, Lat. *navet*, *naveau*, Fr.] A plant. It agrees in moſt reſpects with the turnip; but has a leſſer root, and ſomewhat warmer in taſte. In the iſle of Ely the ſpecies, which is wild, is very much cultivated, it being the cole-ſeed from which they draw the oil. *Miller.*

(2.) Navew, in botany. See Brassica, N°

NAUGATICK, or NAUGATUCK, } a river of Connecticut, NE. branch of the Housatonic, which riſes in Norfolk townſhip, Litchfield county, thence runs SSE. and falls into the Stratford, 10 miles above Long Iſland Sound.

NAUGERIUS. See Navagiero, N° 1.

(1.) * NAUGHT. *adj.* [*naht*, *nawhiht*, Saxon; that is, *ne aught*, not any thing.] Bad; corrupt; worthleſs; it is now hardly uſed but in ludicrous language.—With them that are able to put a difference between things *naught* and things indifferent in the church of Rome, we are yet at controverſy about the manner of removing that which is *naught*. *Hooker.*—

Thy ſiſter's *naught*: Oh Regan! *Shak.*

(2.) * Naught. *n. ſ.* Nothing. This is commonly, though improperly, written *nought*. See Aught and Ought.—

Be you contented
To have a ſon ſet your decrees at *naught? Shak.*

* NAUGHTILY. *adv.* [from *naughty.*] Wickedly; corruptly.

* NAUGHTINESS. *n. ſ.* [from *naughty.*] Wickedneſs; badneſs. Slight wickedneſs or perverſeneſs, as of children.—No remembrance of *naughtineſs* delights but mine own. *Sidney.*

NAUGHTON, a town of Scotland, in Fifeſhire, 6 miles N. of Cupar.

* NAUGHTY. *adj.* The ſame with *naught.*—1. Bad; wicked; corrupt.—A prince of great courage and beauty, but foſtered up in blood by his *naughty* father. *Sidney.*—

These *naughty* times
Put bars between the owners and their rights.
Shak.

How far that little candle throws his beams!
So ſhines a good deed in a *naughty* world. *Shak.*

2. It is now ſeldom uſed but in ludicrous cenſure.

But *naughty* man, thou doſt not mean to ſleep;
Betake thee to thy bed. *Dryden.*

NAUHEIM, a town of Germany, in the circle of the Upper Rhine, and county of Hanau Munzenberg, famed for ſalt-works: 13 miles N. of Hanau.

(1.) * NAVICULAR. *adj.* [*navicularis*, Latin; *naviculaire*, Fr.] In anatomy, the third bone in each foot, that lies between the aſtragalus and oſſa cuneiformia. *Dict.*

(2.) NAVICULAR BONE. } See ANATOMY, § 161.
NAVICULARE OS. }

NAVIDAD, a ſea-port of Mexico, on the South Sea; 350 miles W. of Mexico. Lon. 106. 0. W. Lat. 19. 0. N.

* NAVIGABLE. *adj.* [*navigable*, Fr. *navigabilis*, Latin.] Capable of being paſſed by ſhips or boats.—The firſt peopled cities were all founded upon theſe *navigable* rivers or their branches. *Raleigh's Hiſt. of the World.*—Many have motioned to the council of Spain the cutting of a *navigable* channel through this ſmall iſthmus. *Heylyn.*—

Almighty Jove ſurveys
Earth, air, and ſhores, and *navigable* ſeas. *Dryden.*

* NAVIGABLENESS *n. ſ.* [from *navigable.*] Capacity to be paſſed in veſſels.

(1.) * *To* NAVIGATE. *v. n.* [*navigo*, Latin; *naviger*, Fr.] To ſail; to paſs by water.—The Phœnicians *navigated* to the extremities of the weſtern ocean. *Arbuthnot on Coins.*

(2.) * *To* NAVIGATE. *v. a.* To paſs by ſhips or boats.—Druſus, the father of the emperor Claudius, was the firſt who *navigated* the northern ocean. *Arbuthnot on Coins.*

NAVIGATION.

DEFINITIONS.

1. * NAVIGATION. *n. ſ.* [*navigation*, French; from *navigate.*] 1. The act or practice of paſſing by water.—Our ſhipping, for number, ſtrength, mariners, and all things that appertain to *navigation*, is as great as ever. *Bacon.*—The loadſtone is that great help to *navigation. More.*

Rude as their ſhips was *navigation* then,
No uſeful compaſs or meridian known. *Dryd.*

—When Pliny names the Pœni as inventors of *navigation*, it muſt be underſtood of the Phœnicians, from whom the Carthaginians are deſcended. *Arbuthnot on Coins.* 2. Veſſels of *navigation.*

Tho' the yeſty waves
Confound and ſwallow *navigation* up. *Shak.*

2. NAVIGATION is more accurately defined, by Dr MACKAY of Aberdeen, the art of conducting or carrying a ſhip from one port to another.

HISTORY *of the* ART.

3. THE poets refer the invention of the art of navigation to Neptune, ſome to Bacchus, others to Hercules, others to Jaſon, and others to Janus, who is ſaid to have made the firſt ſhip. Hiſtorians aſcribe it to the Æginetes, the Phœnicians, Tyrians, and the ancient inhabitants of Britain. Some will have it, the firſt hint was taken from the flight of the kite; others, as Oppian, (*De Piſcibus*, lib. i.) from the fiſh called *nautilus*: others aſcribe it to accident.—Scripture refers the origin of this uſeful invention to God himſelf, who gave the firſt ſpecimen thereof in the ark built by Noah under his direction. For the raillery the good man underwent on account of his enterpriſe ſhows evidently enough, that men were then ignorant of any thing like navigation, and that they even thought it impoſſible.

4. However, profane hiſtory repreſents the PHOENICIANS, eſpecially thoſe of their capital Tyre, as the firſt navigators; being urged to ſeek a foreign commerce by the narrowneſs and poverty of a ſlip of ground they poſſeſſed along the coaſts; as well as by the conveniency of two or three good ports, and by their natural genius for traffic. Accordingly, Lebanon, and the other neighbouring mountains, furniſhing them with excellent wood for ſhip-building, in a ſhort time they were maſters of a numerous fleet; and conſtantly hazarding new navigations, and ſettling new trades, they ſoon arrived at an incredible pitch of opulence and populouſneſs: inſomuch as to be in a condition to ſend out colonies, the principal of which was that of CARTHAGE: which, keeping up their Phœnician ſpirit of commerce, in time not only equalled Tyre itſelf, but vaſtly ſurpaſſed it; ſending its merchant fleets through Hercules's pillars, now the ſtraits of Gibraltar, along the weſtern coaſts of Africa and Europe; and even, if we believe ſome authors, to America.

5. TYRE, whoſe immenſe riches and power are repreſented in ſuch lofty terms both in ſacred and profane authors, being deſtroyed by Alexander the Great, its navigation and commerce were transferred by the conqueror to Alexandria, a new city, admirably ſituated for thoſe purpoſes, propoſed for the capital of the empire of Aſia, which Alexander then meditated. And thus aroſe the navigation of the Egyptians, which was afterwards ſo cultivated by the Ptolemies, that Tyre and Carthage were quite forgot.

6. EGYPT being reduced into a Roman pro-

vince after the battle of Actium, its trade and navigation fell into the hands of Auguſtus; in whoſe time Alexandria was only inferior to Rome: and the magazines of the capital of the world were wholly ſupplied with merchandizes from the capital of Egypt. At length, ALEXANDRIA itſelf underwent the fate of Tyre and Carthage; being ſurpriſed by the Saracens, who, in ſpite of the emperor Heraclius, overſpread the northern coaſts of Africa, &c. whence the merchants being driven, Alexandria has ever ſince been in a languiſhing ſtate, though ſtill it has a conſiderable part of the commerce of the Chriſtian merchants trading to the Levant.

7. The nations of ROMAN BRITAIN, and the tribes of CALEDONIA and IRELAND, had inherited from their earlieſt anceſtors, many of the ruder arts of navigation. Their ſhips were large open boats, framed of light timbers ribbed with hurdles and lined with hides. Theſe were furniſhed with maſts and ſails. The latter were formed of hides, as the tackle was of thongs. They were actually of hides among the Veneti as late as the days of Cæſar; and they were never furled, but only bound to the maſt. But theſe ſlight ſea-boats, and their furniture, would ſoon be diſmiſſed by the provincials, for the more ſubſtantial veſſels and more artificial ſails of the Romans.

8. The fall of ROME and its empire drew along with it not only that of learning and the polite arts, but that of navigation; the barbarians, into whoſe hands it fell, contenting themſelves with the ſpoils of the induſtry of their predeceſſors. But no ſooner were the more brave among thoſe nations well ſettled in their new provinces; ſome in Gaul, as the Franks; others in Spain, as the Goths; and others in Italy, as the Lombards; but they began to learn the advantages of navigation and commerce, and the methods of managing them, from the people they ſubdued; and this with ſo much ſucceſs, that in a little time ſome of them became able to give new leſſons, and ſet on foot new inſtitutions for its advantage. Thus it is to the Lombards we uſually aſcribe the invention and uſe of banks, book-keeping, exchanges, rechanges, &c.

9. It is not certain which of the European nations, after the ſettlement of their new maſters, firſt betook themſelves to navigation and commerce. Some think it began with the French; though the Italians ſeem to have the juſteſt title to it, and are accordingly ordinarily looked on as the reſtorers hereof; as well as of the polite arts, which had been baniſhed together from the time the empire was torn aſunder. It is the people of Italy, then, and particularly thoſe of Venice and Genoa, who have the glory of this reſtoration; and it is to their advantageous ſituation for navigation they in a great meaſure owe their glory. In the bottom of the Adriatic were a great number of marſhy iſlands, only ſeparated by narrow channels, but thoſe well ſcreened, and almoſt inacceſſible, the reſidence of ſome fiſhermen, who ſupported themſelves by a little trade of fiſh and ſalt, which they found in ſome of theſe iſlands. Thither the VENETI, a people inhabiting that part of Italy along the coaſts of the gulph, retired, when Alaric king of the Goths, and afterwards Attila king of the Huns, ravaged Italy.

10. Theſe new iſlanders, little imagining that this was to be their fixed reſidence, did not think of compoſing any body politic; but each of the 72 iſlands of the little Archipelago continued a long time under its ſeveral maſters, and each made a diſtinct commonwealth. When their commerce was become conſiderable enough to give jealouſy to their neighbours, they began to think of uniting into a body. And it was this union, firſt begun in the 6th century, but not completed till the 8th, that laid the ſure foundation of the future grandeur of the ſtate of VENICE. From the time of this union, their fleets of merchantmen were ſent to all parts of the Mediterranean; and at laſt to thoſe of Egypt, particularly Cairo, a new city, built by the Saracens on the E. banks of the Nile, where they traded for the ſpices and other products of the Indies. Thus they flouriſhed, increaſed their commerce, their navigation, and their conqueſts on the terra firma, till the league of Cambray in 1508, when a number of jealous princes conſpired to their ruin; which was the more eaſily effected by the diminution of their Eaſt India commerce, of which the Portugueſe had got one part, and the French another. GENOA, which had applied to navigation at the ſame time with Venice, and with equal ſucceſs, was a long time its dangerous rival, diſputed with it the empire of the ſea, and ſhared with it the trade of Egypt and other parts both of the eaſt and weſt.

11. Jealouſy ſoon began to break out; and the two republics coming to blows, there was almoſt continual war for three centuries ere the ſuperiority was aſcertained; when, towards the end of the 14th century, the battle of Chioza ended the ſtrife; the Genoeſe, who till then had uſually the advantage, having now loſt all, and the Venetians, almoſt become deſperate, at one happy blow, beyond all expectation, ſecured to themſelves the empire of the ſea, and ſuperiority in commerce.

12. About the ſame time that navigation was revived in the ſouthern parts of Europe, a new ſociety of merchants was formed in the north, which not only carried commerce to the greateſt perfection it was capable of, till the diſcovery of the Eaſt and Weſt Indies, but alſo formed a new ſcheme of laws for the regulation thereof, which ſtill obtain under the names of *Uſes and Cuſtoms of the Sea*. This ſociety is that famous league of the Hanſe towns, commonly ſuppoſed to have begun about 1164. See HANSE TOWNS. For the modern ſtate of navigation in England, Holland, France, Spain, Portugal, &c. See COMPANY, TRADE, &c.

13. In examining the reaſons why commerce has paſſed ſucceſſively from the Venetians, Genoeſe, and Hanſe towns, to the Portugueſe and Spaniards, and from theſe again to the Engliſh and Dutch; it may be eſtabliſhed as a maxim, that the relation or union between commerce and navigation is ſo intimate, that the fall of the one inevitably draws after it the other's; and that they will always either flouriſh or dwindle together. Hence ſo many laws, ordinances, ſtatutes, &c. for its regulation; and hence particularly that celebra-

ed ACT OF NAVIGATION, which an eminent foreign author calls the *palladium* or *tutelary deity of the commerce of England*; which is the ſtanding rule, not only of the Britiſh among themſelves, but alſo of other nations with whom they traffic. See LAWS, § 9, 11, and MARITIME, § 7.

14. The art of navigation hath been exceedingly improved in modern times, both with regard to the form of the veſſels, and the methods of working them. The uſe of rowers is now entirely ſuperſeded by the improvements made in the formation of the ſails, rigging, &c. by which means the ſhips can not only ſail much faſter than formerly, but can tack in any direction with the greateſt facility. It is alſo probable that the ancients were neither ſo well ſkilled in finding the latitudes, nor in ſteering their veſſels in places of difficult navigation, as the moderns. But the greateſt advantage which the moderns have over the ancients is from the mariner's compaſs, by which they can find their way with as great facility in the midſt of an immeaſurable ocean, as the ancients could have done by creeping along the coaſt, and never going out of ſight of land. Some indeed contend, that this is no new invention, but that the ancients were acquainted with it. They ſay, that it was impoſſible for Solomon to have ſent ſhips to Ophir, Tarſhiſh, and Parvaim, which laſt they will have to be *Peru*, without this uſeful inſtrument. They inſiſt, that it was impoſſible for the ancients to be acquainted with the attractive virtue of the magnet, and to be ignorant of its polarity. Nay, they affirm, that this property of the magnet is plainly mentioned in the book of Job, where the loadſtone is mentioned by the name of *topaz*, or the *ſtone that turns itſelf*. But it is certain that the Romans, who conquered Judea, were ignorant of this inſtrument; and it is very improbable, that ſuch an uſeful invention, if once it had been commonly known to any nation, would have been forgot, or perfectly concealed from ſuch a prudent people as the Romans, who were ſo much intereſted in the diſcovery of it.

15. Among thoſe who think that the MARINER'S COMPASS is a modern invention, it hath been much diſputed who was the inventor. Some give the honour of it to Flavio Gioia of Amalfi in Campania, in the 14th century, (See GIOIA,); while others ſay that it came from the eaſt, and was earlier known in Europe. But, at whatever time it was invented, it is certain, that the mariner's compaſs was not commonly uſed in navigation before 1410. In that year the ſcience was conſiderably improved under the auſpices of Henry duke of Viſco, brother to the king of Portugal. In 1485, Roderic and Joſeph, phyſicians to king John II. of Portugal, together with one Martin of Bohemia, a Portugueſe native of the iſland of Fayal, and ſcholar to Regiomontanus, calculated tables of the ſun's declination for the uſe of ſailors, and recommended the aſtrolabe for taking obſervations at ſea. Of the inſtructions of Martin, the celebrated Chriſtopher Columbus is ſaid to have availed himſelf, and to have improved the Spaniards in the knowledge of the art: for the farther progreſs of which a lecture was afterwards founded at Seville by the emperor Charles V.

16. The diſcovery of the VARIATION is claimed by COLUMBUS, and by Sebaſtian Cabot. The former certainly did obſerve this variation without having heard of it from any other perſon, on the 14th Sept. 1492; and it is probable that Cabot might do the ſame. At that time it was found that there was no variation at the Azores, where ſome geographers have thought proper to place the firſt meridian; though it hath ſince been obſerved that the variation alters in time.—The uſe of the croſs-ſtaff now began to be introduced among ſailors. This ancient inſtrument is deſcribed by John Werner of Nuremberg in his annotations on the firſt book of Ptolemy's Geography, printed in 1514. He recommends it for obſerving the diſtance between the moon and ſome ſtar, in order thence to determine the longitude.

17. At this time the art of navigation was very imperfect, on account of the inaccuracies of the plane chart, which was the only one then known, and which, by its groſs errors, muſt have greatly miſled the mariner, eſpecially in voyages far diſtant from the equator. Its precepts were probably at firſt only ſet down on the ſea-charts, as is the cuſtom at this day: but at length there were two Spaniſh treatiſes publiſhed in 1545; one by Peter de Medina; the other by Martin Cortes, which contained a complete ſyſtem of the art, as far as it was then known. Theſe ſeem to have been the oldeſt writers who fully handled the art; for Medina, in his dedication to Philip prince of Spain, laments that multitudes of ſhips daily periſhed at ſea, becauſe there were neither teachers of the art, nor books by which it might be learned; and Cortes, in his dedication, boaſts to the emperor, that he was the firſt who had reduced navigation into a compendium, valuing himſelf much on what he had performed. Medina defended the plane chart; but he was oppoſed by Cortes, who ſhewed its errors, and endeavoured to account for the variation of the compaſs, by ſuppoſing the needle to be influenced by a magnetic pole (which he called the *point attractive*), different from that of the world: which notion hath been farther proſecuted by others.

18. MEDINA's book was ſoon tranſlated into Italian, French, and Flemiſh, and ſerved for a long time as a guide to foreign navigators. However CORTES was the favourite author of the Engliſh nation, and was tranſlated in 1561; while Medina's work was entirely neglected, though tranſlated alſo within a ſhort time of the other. At that time the ſyſtem of navigation conſiſted of the following particulars, and others ſimilar: An account of the Ptolemaic hypotheſis, and the circles of the ſphere; of the roundneſs of the earth, the longitudes, latitudes, climates, &c. and eclipſes of the luminaries; a calendar; the method of finding the prime, epact, moon's age, and tides; a deſcription of the compaſs; an account of its variation, for the diſcovering of which Cortes ſaid an inſtrument might eaſily be contrived; tables of the ſun's declination for four years, in order to find the latitude from his meridian altitude; directions to find the ſame by certain ſtars: of the courſe of the ſun and moon; the length of the days; of time and its diviſions; the method of finding the hour of the day and night; and laſtly, a deſcription of the ſea-chart, on which, to

diſcover where the ſhip is, they made uſe of a ſmall table, that ſhowed, upon an alteration of one degree of the latitude, how many leagues were run in each rhumb, together with the departure from the meridian. Beſides, ſome inſtruments were deſcribed, eſpecially by Cortes; ſuch as one to find the place and declination of the ſun, with the days and place of the moon; certain dials, the aſtrolabe and croſs-ſtaff; with a complex machine to diſcover the hour and latitude at once.

19. About the ſame time were made propoſals for finding the longitude by obſervations on the moon. In 1530, Gemma Frisius adviſed the keeping of the time by means of ſmall clocks or watches, then, as he ſays, newly invented. He alſo contrived a new ſort of croſs-ſtaff, and an inſtrument called the *nautical quadrant;* which laſt was much praiſed by William Cunningham, in his *Aſtronomical Claſs*, printed in 1559.

20. In 1537, Peter Nunez, or Nonius, publiſhed a book in the Portugueſe language, to explain a difficulty in navigation propoſed to him by the commander Don Martin Alphonſo De Suſa. In this he expoſes the errors of the plane chart, and gives the ſolution of ſeveral curious aſtronomical problems; among which is that of determining the latitude from two obſervations of the ſun's altitude, and intermediate azimuth being given. He obſerved, that though the rhumbs are ſpiral lines, yet the direct courſe of a ſhip will always be in the arch of a great circle, whereby the angle with the meridians will continually change; all that the ſteerſman can here do for the preſerving of the original rhumb, is to correct theſe deviations as ſoon as they appear ſenſible. But thus the ſhip will in reality deſcribe a courſe without the rhumb-line intended; and therefore his calculations for aſſigning the latitude, where any rhumb-line croſſes the ſeveral meridians, will be in ſome meaſure erroneous. He invented a method of dividing a quadrant by means of concentric circles, which, after being much improved by Dr Halley, is uſed at preſent, and is called a nonius.

21. In 1577 Mr William Bourne publiſhed a treatiſe, in which, by conſidering the irregularities in the moon's motion, he ſhows the errors of the ſailor in finding her age by the epact, and alſo in determining the hour from obſerving on what point of the compaſs the ſun and moon appeared. He adviſes, in ſailing towards the high latitudes, to keep the reckoning by the globe, as there the plane chart is moſt erroneous. He deſpairs of our ever being able to find the longitude, unleſs the variation of the compaſs ſhould be occaſioned by ſome ſuch attractive point as Cortes had imagined; of which, however, he doubts: but as he had ſhewn how to find the variation at all times, he adviſes to keep an account of the obſervations, as uſeful for finding the place of the ſhip; which advice was proſecuted at large by Simon Stevin, in a treatiſe publiſhed at Leyden in 1599; the ſubject of which was the ſame year printed at London in Engliſh by Mr Edward Wright, intitled the *Haven-finding Art*.

22. In this ancient tract alſo is deſcribed the way by which our ſailors eſtimate the rate of a ſhip in her courſe, by the log. This was ſo named from the piece of wood or log that floats in the water, while the time is reckoned during which the line that is faſtened to it is veering out. The author of this contrivance is not known; neither was it taken notice of till 1607, in an Eaſt India voyage publiſhed by Purchas; but from this time it became famous, and was much taken notice of by almoſt all writers on navigation in every country; and it ſtill continues to be uſed as at firſt, though many attempts have been made to improve it, and contrivances propoſed to ſupply its place; many of which have ſucceeded in quiet water, but proved uſeleſs in a ſtormy ſea. See Log, § 3—8.

23. In 1581 Michael Coignet, a native of Antwerp, publiſhed a treatiſe in which he animadverted on Medina. In this he ſhewed, that as the rhumbs are ſpirals, making endleſs revolutions about the poles, numerous errors muſt ariſe from their being repreſented by ſtraight lines on the ſea-charts; but though he hoped to find a remedy for theſe errors, he was of opinion that the propoſals of Nonius were ſcarcely practicable, and therefore in a great meaſure uſeleſs. In treating of the ſun's declination, he took notice of the gradual decreaſe in the obliquity of the ecliptic; he alſo deſcribed the croſs-ſtaff with three tranſverſe pieces, as it is at preſent made, and which he owned to have been then in common uſe among the ſailors. He likewiſe gave ſome inſtruments of his own invention; but all of them are now laid aſide, excepting perhaps his nocturnal. He conſtructed a ſea-table to be uſed by ſuch as ſailed beyond 60° of latitude; and at the end of the book is delivered a method of ſailing on a parallel of latitude by means of a ring-dial and a 24 hour-glaſs.

24. The ſame year the diſcovery of the dipping needle was made by Mr Robert Forman. In his publication on that art, he maintains, in oppoſition to Cortes, that the variation of the compaſs was cauſed by ſome point on the ſurface of the earth, and not in the heavens; he alſo made conſiderable improvements in the conſtruction of compaſſes themſelves; ſhewing eſpecially the danger of not fixing, on account of the variation, the wire directly under the *flower-de-luce;* as compaſſes made in different countries have placed it differently. To this performance of Forman's is always prefixed a diſcourſe on the variation of the magnetical needle, by Mr William Burrough, in which he ſhows how to determine the variation in many different ways. He alſo points out many errors in the practice of navigation at that time, and ſpeaks in very ſevere terms concerning those who had publiſhed upon it.

25. All this time the Spaniards had continued to publiſh treatiſes on the art. In 1585 an excellent compendium was publiſhed by Roderico Zamorano; which contributed greatly towards the improvement of the art, particularly in the ſea charts. Globes of an improved kind, and of a much larger ſize than thoſe formerly uſed, were now conſtructed, and many improvements were made in other inſtruments; however, the plane chart continued ſtill to be followed, though its errors were frequently complained of.

26. Methods of removing theſe errors had indeed been ſought after; and Gerard Mercator

or ſeems to have been the firſt who found the ue method of doing this ſo as to anſwer the urpoſes of ſeamen. His method was to repreſent e parallels both of latitude and longitude by rallel ſtraight lines, but gradually to augment e former as they approached the pole. Thus e rhumbs, which otherwiſe ought to have been rves, were now alſo extended into ſtraight lines; d thus a ſtraight line drawn between any two aces marked upon the chart would make an gle with the meridians, expreſſing the rhumb ading from the one to the other. But though, 1569, Mercator publiſhed an univerſal map nſtructed in this manner, it doth not appear that was acquainted with the principles on which is proceeded; and it is now generally believed, at the true principles on which the conſtruction what is called *Mercator's chart* depends, were ſt diſcovered by an Engliſhman, Mr Edward right.

27. Mr WRIGHT ſuppoſes, but, according to general opinion, without ſufficient grounds, at this enlargement of the degrees of latitude s known and mentioned by PTOLEMY, and at the ſame thing had alſo been ſpoken of by rtes. The expreſſions of Ptolemy, alluded to, ate indeed to the proportion between the diſces of the parallels and meridians; but inſtead propoſing any gradual enlargement of the palels of latitude, in a general chart, he ſpeaks y of particular maps; and adviſes not to cona ſyſtem of ſuch maps to one and the ſame le, but to plan them out by a different meaſure, occaſion might require; only with this precaun, that the degrees of longitude in each ſhould r ſome proportion to thoſe of latitude; and this portion is to be deduced from that which the gnitude of the reſpective parallels bears to a at circle of the ſphere. He adds, that in parlar maps, if this proportion be obſerved with rd to the middle parallel, the inconvenience not be great, though the meridians ſhould be ght parallels to each other. Here he is ſaid to mean, that the maps ſhould in ſome meaſure eſent the figures of the countries for which are drawn. In this ſenſe Mercator, who v maps for Ptolemy's tables, underſtood him; king it, however, an improvement not to rete the meridians by one parallel, but by two; diſtant from the northern, the other from the hern extremity of the map, by a fourth part e whole depth; by which means, in his maps, gh the meridians are ſtraight lines, yet they enerally drawn inclining to each other towards oles. With regard to Cortes, he ſpeaks only e number of degrees of latitude, and not of the t of them; nay, he gives expreſs directions, they ſhould all be laid down by equal meaſure- on a ſcale of leagues adapted to the map.

. For ſome time after the appearance of cator's map, it was not rightly underſtood, t was even thought to be entirely uſeleſs, if letrimental. However, about 1592 its utility n to be perceived; and ſeven years after, Mr GHT printed his famous treatiſe, entitled *Correction of certain Errors in Navigation;* e he fully explained the reaſon of extending ength of the parallels of latitude, and the uſes of it to navigators. In 1610 a ſecond edition of Mr Wright's book was publiſhed with improvements. An excellent method was propoſed of determining the magnitude of the earth; at the ſame time it was judiciouſly propoſed to make our common meaſures in ſome proportion to a degree on its ſurface, that they might not depend on the uncertain length of a barley-corn. Some of his other improvements were, "The table of latitudes for dividing the meridian computed to minutes;" whereas it had only been divided to every tenth minute. He alſo publiſhed a deſcription of an inſtrument which he calls the *ſea-rings;* and by which the variation of the compaſs, altitude of the ſun, and time of the day, may be determined readily at once in any place, provided the latitude is known. He ſhewed alſo how to correct the errors ariſing from the eccentricity of the eye in obſerving by the croſs-ſtaff. He made a total amendment in the tables of the declinations and places of the ſun and ſtars from his own obſervations, made with a ſix-foot quadrant, in the years 1594, 95, 96, and 97. A ſea-quadrant to take altitudes by a foreward or backward obſervation; and likewiſe with a contrivance for the ready finding the latitude by the height of the pole-ſtar, when not upon the meridian. To this edition was ſubjoined a tranſlation of Zemorano's Compendium above mentioned; in which he corrected ſome miſtakes in the original, adding a large table of the variation of the compaſs obſerved in very different parts of the world, to ſhew that it was not occaſioned by any magnetical pole.

29. Theſe improvements ſoon became known abroad. In 1608 a treatiſe, intitled *Hypomnemata Mathematica* was publiſhed by Simon Stevin, for the uſe of Prince Maurice. In that part relating to navigation, the author having treated of ſailing on a great circle, and ſhewn how to draw the rhumbs on a globe mechanically, ſets down Wright's two tables of latitude and of rhumbs, in order to deſcribe theſe lines more accurately, pretending even to have diſcovered an error in Wright's table. But all Stevin's objections were fully anſwered by the author himſelf, who ſhowed that they aroſe from the groſs way of calculating made uſe of by the former.

30. In 1624 the learned WELLEBRORD SNELL, profeſſor of mathematics at Leyden, publiſhed a treatiſe of navigation on Wright's plan, but ſomewhat obſcurely; and as he did not particularly mention all the diſcoveries of Wright, the latter was thought by ſome to have taken the hint of all his diſcoveries from Snellius. But this ſuppoſition is long ago refuted; and Wright enjoys the honour of thoſe diſcoveries, which is juſtly his due.

31. Mr Wright having ſhown how to find the place of the ſhip on his chart, obſerved that the ſame might be performed more accurately by calculation; but conſidering, as he ſays, that the latitudes, and eſpecially the courſes at ſea, could not be determined ſo preciſely, he forebore ſetting down particular examples; as the mariner may be allowed to ſave himſelf this trouble, and only mark out upon his chart the ſhip's way after the manner then uſually practiſed. However, in 1614, Mr

RAPHE HANDSON, among his *nautical queſtions* ſubjoined to a tranſlation of Pitiſcus's Trigonometry, ſolved very diſtinctly every caſe of navigation, by applying arithmetical calculations to Wright's table of latitudes, or of meridional parts, as it hath ſince been called.

32. Though the method diſcovered by Wright, for finding the change of longitude by a ſhip ſailing on a rhumb, is the proper way of performing it, Handſon propoſes two ways of approximation to it without the aſſiſtance of Wright's diviſion of the meridian line. The firſt was computed by the arithmetical mean between the coſines of both latitudes; the other by the ſame mean between the ſecants, as an alternate, when Wright's book was not at hand; though this latter is wider from the truth than the firſt. By the ſame calculations alſo, he ſhowed how much each of theſe compendiums deviates from the truth, and alſo how widely the computations on the erroneous principles of the plane chart differ from them all. The method, however, generally uſed by our ſailors is commonly called the *middle latitude;* which, though it errs more than that by the arithmetical mean between the two coſines, is preferred, on account of its being leſs operoſe; yet in high latitudes it is more eligible to uſe that of the arithmetical mean between the logarithmic coſines, equivalent to the geometrical mean between the coſines themſelves; a method ſince propoſed by Mr John Baſſat. The computation by the middle latitude will always fall ſhort of the true change of longitude; that by the geometrical mean will always exceed; but that by the arithmetical mean falls ſhort in latitudes above 45°, and exceeds in leſſer latitudes. However, none of theſe methods will differ much from the truth when the change of latitude is ſmall.

33. About this time LOGARITHMS were invented by JOHN NAPIER, baron of Merchiſton in Scotland, and proved of the utmoſt ſervice to the art of navigation. They were firſt applied by Mr EDWARD GUNTER in 1620. He conſtructed a table of artificial ſines and tangents to every minute of the quadrant. Theſe were applied according to Wright's table of meridional parts, and have been found extremely uſeful in other branches of the mathematics. He contrived alſo a moſt excellent ruler, commonly called GUNTER'S SCALE, on which were inſcribed the logarithmic lines for numbers, and for ſines and tangents of arches. He alſo greatly improved the ſector for the ſame purpoſes. He ſhewed alſo how to take a back obſervation by the croſs-ſtaff, whereby the error ariſing from the eccentricity of the eye is avoided. He deſcribed likewiſe another inſtrument of his own invention, called the *croſs-bow*, for taking altitudes of the ſun or ſtars, with ſome contrivances for the more ready collecting the latitude from the obſervation. The diſcoveries concerning the logarithms were carried to France in 1624 by Mr Edmund Wingate, who publiſhed two ſmall tracts in that year at Paris. In one of theſe he taught the uſe of Gunter's ſcale; and in the other, of the tables of artificial ſines and tangents, as modelled according to Napier's laſt form, erroneouſly attributed by Wingate to Briggs.

34. GUNTER'S RULER was projected into circular arch by the Rev. WILLIAM OUGHTR in 1633, and its uſes fully ſhown in a pamph entitled *The circles of Proportion;* where, in appendix, are well handled ſeveral impor points in navigation. It has alſo been made the form of a ſliding ruler.

35. The logarithmic tables were firſt applied the different caſes of ſailing by Mr THOMAS A DISON, in his treatiſe entitled *Arithmetical Na gation*, printed in 1625. He alſo gives two verſe tables, with their uſes; the one to qua points of the compaſs, the other to degrees. Henry Gellibrand publiſhed his diſcovery of changes of the variation of the compaſs small 4to pamphlet, entitled *A Diſcourſe Ma matical on the Variation of the Magnetical N* printed in 1635. This extraordinary phenom he found out by comparing the obſervations at different times near the ſame place by Mr B rough, Mr Gunter, and himſelf, all perfor great ſkill and experience in theſe matters. T diſcovery was likewiſe ſoon known abroad; F. Athanaſius Kircher, in his treatiſe enti *Magnes*, firſt printed at Rome in 1641, inform us, that he had been told it by Mr John Gre and then gives a letter of the famous Ma Merſennus, containing a very diſtinct accoun the ſame.

36. As altitudes of the ſun are taken on board by obſerving his elevation above the horizon, to collect from thence the ſun's true titude with correctneſs, Wright obſerves it necesſary that the dip of the horizon below obſerver's eye ſhould be brought into the accou which cannot be calculated without knowing magnitude of the earth. Hence he was ind to propoſe the different methods for finding but complains that the moſt effectual was his power to execute; and therefore cont himſelf with a rude attempt, in ſome m ſufficient for his purpoſe; and the dimenſio the earth deduced by him correſponded ſo with the uſual diviſions of the log-line, that writ not an expreſs treatiſe on navigation, only for the correcting ſuch errors as prevaild general practice, the log-line did not fall his notice.

37. Mr RICHARD NORWOOD, however, pu execution the method recommended by Mr Wr as the moſt perfect for meaſuring the dimen of the earth, with the true length of the degree a great circle upon it; and, in 1635, he act meaſured the diſtance between London and Y from whence, and the ſummer ſolſtitial altitude the ſun obſerved on the meridian at both p he found a degree on a great circle of the to contain 367,196 Engliſh feet, equal to 57 French fathoms or toiſes; which is very exac appears from many meaſures that have been ſince that time. Of all this Mr Norwood g full account, in his treatiſe called the Sea *Practice*, publiſhed in 1637. He there ſhow reaſon why Snell had failed in his attempt. points out alſo various uſes of his diſcovery, p ticularly for correcting the groſs errors hith committed in the diviſions of the log-line. Th neceſſary amendments, however, were little tes.

ıded to by the ſailors, whoſe obſtinacy in adring to eſtabliſhed errors has been complained by the beſt writers on navigation; but at length y found their way into practice, and few navitors of reputation now uſe the old meaſure of 42 t to a knot. In that treatiſe alſo Mr Norwood ſcribes his own excellent method of ſetting wn and perfecting a ſea-reckoning, by uſing a verſe table; which method he had followed l taught for many years. He ſhows alſo how to tify the courſe by the variation of the compaſs ng conſidered; alſo how to diſcover currents, l to make proper allowance on their account. is treatiſe, and another on trigonometry, were tinually reprinted, as the principal books for ning ſcientifically the art of navigation. What ad delivered, eſpecially in the latter, concerning ſubject, was contracted as a manual for ſailors, very ſmall piece called his *Epitome;* which ful performance has gone through a great nber of editions.

8. No alterations were ever made in the Sea- 's Practice till the 12th edition in 1676, when following paragraph was inſerted in a ſmaller racter: "About 1672 M. Picart publiſhed ccount in French, concerning the meaſure of earth, a breviate whereof may be ſeen in the *ſ. Tranſ.* N° 112; wherein he concludes one ee to contain 365,184 Engliſh feet, nearly eing with Mr Norwood's experiment;" and advertiſement is continued in the ſubſequent ions as late as 1732. About 1645 Mr Bond liſhed in Norwood's Epitome a very great rovement in Wright's method, by a property meridian line, whereby its diviſions are more tifically aſſigned than the author himſelf was to effect; which was from this theorem, that diviſions are analogous to the exceſſes of logarithmic tangents of half the reſpective ıdes, augmented by 45 degrees above the ithm of the radius. This he afterwards ined more fully in the edition of Gunter's , printed in 1653; where, after obſerving the logarithmic tangents from 45° upwards aſe in the ſame manner that the ſecants added her do; if every half degree be accounted whole degree of Mercator's meridional line; ale for computing the meridional parts beng to any two latitudes, ſuppoſed on the ſide of the equator, is to the following : "Take the logarithmic tangent, rejecting adius, of half each latitude, augmented by grees; divide the difference of thoſe numy the logarithmic tangent of 5° 30′, the raeing likewiſe rejected; and the quotient will e meridional parts required, expreſſed in es." This rule is the immediate conſequence the general theorem, that the degrees of la- bear to one degree (or 60 minutes, which ight's table ſtand for the meridional parts e degree) the ſame proportion as the logaic tangent of half any latitude augmented by d the radius neglected, to the like tangent lf a degree augmented by 45°, with the likewiſe rejected.

But ſtill there was farther wanting the deration of this general theorem, which was gth ſupplied by Mr James Gregory of Aberdeen, in his *Exercitationes Geometricæ*, printed at London in 1668; and afterwards more conciſely demonſtrated, together with a ſcientific determination of the diviſor, by Dr Halley in the *Philoſ. Tranſ.* for 1695, N° 219, from the conſideration of the ſpirals into which the rhumbs are transformed, in the ſtereographic projection of the ſphere upon the plane of the equinoctial; and which is rendered ſtill more ſimple by Mr Roger Cotes, in his *Logometeria*, firſt publiſhed in the *Philoſ. Tranſ.* for 1714, N° 388. It is added in Gunter's book, that if $\frac{1}{20}$ of this diviſion, which does not ſenſibly differ from the logarithmic tangent of 45° 1′ 30″ (with the radius ſubtracted from it) be uſed, the quotient will exhibit the meridional parts expreſſed in leagues; and this is the diviſor ſet down in Norwood's Epitome. After the ſame manner the meridional parts will be found in minutes, if the like logarithmic tangent of 45° 1′ 30″, diminiſhed by the radius, be taken; that is, the number uſed by others being 12,633, when the logarithmic tables conſiſt of eight places of figures beſides the index.

40. In an edition of the *Seaman's Kalendar*, Mr Bond declared, that he had diſcovered the longitude by having found out the true theory of the magnetic variation; and to gain credit to his aſſertion, he foretold, that at London, in 1657, there would be no variation of the compaſs, and from that time it would gradually increaſe the other way; which happened accordingly. Again, in the *Philoſ. Tranſ.* for 1668, N° 40, he publiſhed a table of the variation for 49 years to come. Thus he acquired ſuch reputation, that his treatiſe, entitled *The Longitude Found*, was, in 1676, publiſhed by the ſpecial command of Charles II. and approved by many celebrated mathematicians.

41. It was not long, however, before it met with oppoſition; and, in 1678, another treatiſe, entitled *The Longitude not Found*, made its appearance; and as Mr Bond's hypotheſis did not in any manner anſwer its author's ſanguine expectations, the affair was undertaken by Dr Halley. The reſult of his ſpeculations was, that the magnetic needle is influenced by four poles; but this wonderful phenomenon ſeems hitherto to have eluded all our reſearches. In 1700, however, Dr Halley publiſhed a general map, with curve lines expreſſing the paths where the magnetic needle had the ſame variation; which was received with univerſal applauſe. But as the poſitions of theſe curves vary from time to time, they ſhould frequently be corrected by ſkilful perſons; as was done in 1744 and 1756, by Mr William Mountaine, and Mr James Dodſon, F. R. S. In the *Philoſ. Tranſ.* for 1690 Dr Halley alſo gave a diſſertation on the monſoons; containing many very uſeful obſervations for ſuch as ſail to places ſubject to theſe winds.

42. After the true principles of the art were ſettled by Wright, Bond, and Norwood, the authors on navigation became ſo numerous, that it would be impoſſible to enumerate them; and every thing relative to it was ſettled with an accuracy not only unknown to former ages, but which would have been reckoned utterly impoſſible. The earth being found to be a ſpheroid, and not a perfect ſphere, with the ſhorteſt diameter

paſſing through the poles, a tract was publiſhed in 1741, by the Rev. Dr Patrick Murdoch, wherein he accommodated Wright's ſailing to ſuch a figure; and Mr Colin Maclaurin, the ſame year, in the *Philoſ. Tranſ.* N° 461, gave a rule for determining the meridional parts of a ſpheroid; which ſpeculation is farther treated of in his book of *Fluxions*, printed at Edinburgh in 1742.

43. Among the later diſcoveries in this ſcience, that of finding the longitude, both by *lunar obſervations* and by TIME-KEEPERS, is the principal. (See LONGITUDE, *Sect.* IV.) The ſcience is indebted to Dr Maſkelyne for putting the firſt of theſe methods in practice, as well as for many other important improvements; and the Britiſh parliament has no ſmall merit in having given encouragement to men of genius to bring the art to perfection, by offering ſuitable rewards. Among foreign nations alſo many treatiſes were now publiſhed; but excepting the remarkable diſcovery of the longitude by Mr Harriſon, no conſiderable improvement hath been made any where. Indeed, the ſubject hath been ſo much canvaſſed and ſtudied by men of learning and ingenuity in all nations, that there ſeems to be little room for farther improvements; and the art of navigation ſeems to be nearly brought to as much perfection as it is capable of.

PART I.

THEORY OF NAVIGATION.

44. THE motion of a ſhip in the water is well known to depend on the action of the wind upon its ſails, regulated by the direction of the helm. As the water is a reſiſting medium, and the bulk of the ſhip very conſiderable, it thence follows, that there is always a great reſiſtance on her fore part; and when this reſiſtance becomes ſufficient to balance the moving force of the wind upon the ſails, the ſhip attains her utmoſt degree of velocity, and her motion is no longer accelerated. This velocity is different according to the different ſtrength of the wind; but the ſtronger the wind, the greater reſiſtance is made to the ſhip's paſſage through the water; and hence, though the wind ſhould blow ever ſo fiercely, there is alſo a limit to the velocity of the ſhip; for the ſails and ropes can bear but a certain force of air; and when the reſiſtance on the fore part becomes more than equivalent to their ſtrength, the velocity can be no longer increaſed, and the tackle gives way.

45. The direction of a ſhip's motion depends on the ſituation of her ſails with regard to the wind. The moſt natural and eaſy poſition is, when ſhe runs directly before it; but this is not often the caſe, on account of the variable nature of the winds, and the ſituations of the different parts to which the ſhip may be bound. When the wind therefore happens not to be favourable, the rudder and ſails muſt be managed in ſuch a manner that the ſhip may make an angle with the direction of the current of air, as repreſented in *Plate* CCXLI. *fig.* 1. Thus, ſuppoſing a ſhip at A, bound for the port B; ſuppoſing DG the length of the keel, it muſt be kept by the rudder in ſuch a poſition as to make the acute angle EDB with the direction of the wind. If, when ſhe arrives at B, it is required to ſail to another port A, the keel muſt be kept in the poſition BF; and thus, by continually making the angle EBA with the direction of the wind, ſhe will arrive at the deſired port; and in this manner may a ſhip be ſteered to any other port, ſuppoſe to C or H.

46. The reaſon of the ſhip's motion in theſe caſes is, that the water reſiſts the ſide more than the fore part, and that in the ſame proportion that her length exceeds her breadth. This proportion is ſo conſiderable, that the ſhip continually flies off where the reſiſtance is leaſt, and that ſometimes with great ſwiftneſs. In this way of ſailing, however, there is a great limitation; for if the angle made by the keel with the direction of the wind be too acute, the ſhip cannot be kept in that poſition; neither is it poſſible for a large ſhip to make a more acute angle with the wind than 67½ degrees; though ſmall ſloops, it is ſaid, may make an angle of 56 or 57 degrees with it. In all theſe caſes, however, the velocity of the ſhip is greatly retarded; and not only on account of the obliquity of her motion, but by reaſon of what is called her *lee-way*. This is occaſioned by the yielding of the water on the lee-ſide of the ſhip, by which means the veſſel acquires a compound motion, partly in the direction of the wind, and partly in that which is neceſſary for attaining the deſired haven. Thus, ſuppoſing a ſhip to ſet out from B, in the direction BA, the force of the wind will have ſuch an impreſſion upon her, that inſtead of keeping the ſtraight path BFFF, ſhe will follow that of B*abc*, &c. and thus will fall ſhort of her intended port by ſome conſiderable ſpace, as A*f*.

47. It is perhaps impoſſible to lay down any mathematical principles on which the lee-way of a ſhip could be properly calculated; only we can ſee in general that it depends on the ſtrength of the wind, the roughneſs of the ſea, and the velocity of the ſhip. When the wind is not very ſtrong, the reſiſtance of the water on the lee-ſide bears a very great proportion to that of the current of air; and therefore it will yield but very little. However, ſuppoſing the ſhip to remain in the ſame place, it is evident that the water, having once begun to yield, will continue to do ſo for ſome time, even though no additional force was applied to it; but as the wind continually applies the ſame force as at firſt, the lee-way of the ſhip muſt go on conſtantly increaſing, till the reſiſtance of the water on the lee-ſide balances the force applied on the other, when it will become uniform, as doth the motion of a ſhip ſailing before the wind. If the ſhip changes her place with any degree of velocity, then every time ſhe moves her own length, a new quantity of water is to be put in motion, which hath not yet received any momentum, and which of conſequence will make a greater reſiſtance than it can do when the ſhip remains in the ſame place. In proportion to the ſwiftneſs of the ſhip, then, the lee-way will be the leſs; but if the wind is very ſtrong, the velocity of the ſhip bears but a ſmall proportion to that of the current of air; and the ſame effect muſt follow as though the ſhip moved ſlowly, and the wind was gentle; that is, the ſhip muſt make a great deal of lee-way.

48. The ſame thing happens when the ſea riſes igh, whether the wind is ſtrong or not; for then he whole water of the ocean, as far as the ſwell eaches, hath acquired a motion in a certain direcion, and that to a very conſiderable depth. The ountainous waves will not fail to carry the ſhip ery much out of her courſe; and this deviation ill certainly be according to their velocity and agnitude. In all caſes of a rough ſea, therefore, great deal of lee-way is made.—Another circumance alſo makes a variation in the quantity of the e-way; namely, the lightneſs or heavineſs of the ip; it being evident, that when the ſhip ſinks eep in the water, a much greater quantity of at element is to be put in motion before ſhe can ake any lee-way, than when ſhe ſwims on the rface. As therefore it is impoſſible to calculate ll theſe things with mathematical exactneſs, it is lain that the real courſe of a ſhip is exceedingly ifficult to be found, and frequent errors muſt be ade, which only can be corrected by celeſtial bſervations.

49. In many places of the ocean there are CURENTS, or places where the water, inſtead of reaining at reſt, runs with a conſiderable velocity r a great way in ſome particular direction, and hich will certainly carry the ſhip greatly out of er courſe. This occaſions an error of the ſame ature with the lee-way; and, therefore, wheneer a current is perceived, its velocity ought to be etermined, and the proper allowances made.

50. Another ſource of error in reckoning the ourſe of a ſhip proceeds from the VARIATION of e compaſs. There are few parts of the world here the needle points exactly north; and in oſe where the variation is known, it is ſubject very conſiderable alterations. By theſe means e courſe of the ſhip is miſtaken; for as ſailors ve no other ſtandard to direct them than the mpaſs, if the needle, inſtead of pointing due N. ould point NE. a prodigious error would be ocſioned during the voyage, and the ſhip would t come near the port to which ſhe was bound. o avoid errors of this kind, the only method is obſerve the azimuths as frequently as poſſible, which the difference of variation will be perived, and the proper allowances can then be ade for errors in the courſe which this may have caſioned.

51. Errors will ariſe in the reckoning of a ſhip, pecially when ſhe ſails in high latitudes, from e ſpheroidal figure of the earth; for as the por diameter of our globe is found to be conſiderly ſhorter than the equatorial one, it thence folws, that the farther we remove from the equar the longer are the degrees of latitude. Of nſequence, if a navigator aſſigns any certain mber of miles for the length of a degree of latide near the equator, he muſt vary that meaſure he approaches towards the poles, otherwiſe he ll imagine that he hath not ſailed ſo far as he tually hath done. It would therefore be neceſy to have a table containing the length of a dee of latitude in every different parallel from equator to either pole; as without this a ubleſome calculation muſt be made at every e the navigator makes a reckoning of his courſe. ch a table, however, hath not yet appeared; neither indeed ſeems it to be eaſy to make it, on account of the difficulty of meaſuring the length even of one or two degrees of latitude in different parts of the world.

52. Sir Isaac Newton firſt diſcovered this ſpheroidal ſhape of the earth; and ſhewed, from experiments on pendulums, that the polar diameter was to the equatorial one as 229 to 230. This proportion, however, hath not been admitted by ſucceeding calculators. The French mathematicians, who meaſured a degree on the meridian in Lapland, made the proportion between the equatorial and polar diameters to be as 1 to 0·9891. Thoſe who meaſured a degree at Quito in Peru, made the proportion 1 to 0·99624, or 266 to 265. M. Bouguer makes the proportion to be as 179 to 178; and M. Buffon, in one part of his theory of the earth, makes the equatorial diameter exceed the polar one by $\frac{1}{181}$ of the whole. From theſe variations it appears, that the point is not exactly determined, and conſequently that any corrections which can be made with regard to the ſpheroidal figure of the earth muſt be very uncertain.

53. It is of conſequence to navigators in a long voyage to take the neareſt way to their port; but this can ſeldom be done without conſiderable difficulty. The ſhorteſt diſtance between any two points of a ſphere is meaſured by an arch of a great circle intercepted between them; and therefore, excepting where both places lie under the ſame parallel of latitude, it is adviſeable to direct the ſhip along a great circle of the earth's ſurface. But this is a matter of conſiderable difficulty, becauſe there are no fixed marks by which it can be readily known whether the ſhip ſails in the direction of a great circle or not. For this reaſon the ſailors commonly direct their courſe by the rhumbs, or the bearing of the place by the compaſs. Theſe bearings do not point out the ſhorteſt diſtance between places; becauſe, on a globe, the rhumbs are ſpirals, and not arches of great circles. However, when the places lie directly under the equator, or exactly under the ſame meridian, the rhumb then coincides with the arch of a great circle, and of conſequence ſhews the neareſt way. The ſailing on the arch of a great circle is called *great circle ſailing*; and the caſes of it depend all on the ſolution of problems in ſpherical trigonometry.

PART II.

PRACTICE OF NAVIGATION.

54. The main end of all practical navigation is to conduct the ſhip in ſafety to her deſtined port; and for this purpoſe it is of the utmoſt conſequence to know in what particular part of the ſurface of the globe ſhe is at any particular time. This can only be done by having an accurate map of the ſea-coaſts of all the countries of the world, and, by tracing out the ſhip's progreſs along the map, to know at what time ſhe approaches the deſired haven, or how ſhe is to direct her courſe in order to reach it. It is therefore a matter of great importance for navigators to be furniſhed with maps, or *charts*, as they are called, not only very accurate in themſelves, but ſuch as are

capable of having the ſhip's courſe eaſily traced upon them, without the trouble of laborious calculations, which are ready to create miſtakes.—The names of the two great diviſions of navigation are taken merely from the kind of charts made uſe of. Plane ſailing is that in which the plane chart is made uſe of; and Mercator's ſailing, or globular ſailing, is that in which Mercator's chart is uſed. In both theſe methods, it is eaſy to find the ſhip's place with as great exactneſs as the chart will allow, either by the ſolution of a caſe in plane trigonometry, or by geometrical conſtruction.

SECT. I. *Of* PLANE SAILING.

55. As a neceſſary preliminary to this method of navigation, we ſhall give the conſtruction of the plane chart. (See *Plates* CCXLI, CCXLII, CCXLIII, and CCXLIV.)

56. I. This chart ſuppoſes the earth to be a plane, and the meridians parallel to one another; and likewiſe the parallels of latitude at equal diſtance from one another, as they really are upon the globe. Though this method be in itſelf evidently falſe; yet, in a ſhort run, and eſpecially near the equator, an account of the ſhip's way may be kept by it tolerably well.

57. Having determined the limits of the chart, that is, how many degrees of latitude and longitude, or meridional diſtance, (they being in this chart the ſame), it is to contain: ſuppoſe from the lat. of 20° N. to the lat. of 71° N.; and from the longitude of London in 0 deg. to the lon. of 50° W.; then chooſe a ſcale of equal parts, by which the chart may be contained within the ſize of a ſheet of paper on which it is intended to be drawn. In the chart annexed, the ſcale is ſuch, that each degree of latitude and longitude is one 8 part of an inch.

58. Make a parallelogram ABCD, *Plate* CCXLI. *fig.* 2. the length of which AB from N. to S. ſhall contain 51° the difference of latitude between the limits of 20° and 71°; and the breadth AD from E. to W. ſhall contain the propoſed 50 degrees of longitude, the degrees being then from the ſaid ſcale of 8 degrees to an inch; and this parallelogram will be the boundaries of the chart. About the boundaries of the chart make ſcales containing the degrees, halves and quarters of degrees (if the ſcale is large enough); drawing lines acroſs the chart through every 5 or 10 degrees; let the degrees of latitude and longitude have their reſpective numbers annexed, and the ſheet is then fitted to receive the places intended to be delineated thereon.

59. On a ſtrait ſlip of paſteboard, or ſtiff paper, let the ſcale of the degrees and parts of degrees of longitude, in the line AD, be laid cloſe to the edge; and the diviſions numbered from the right hand towards the left being all weſt longitude. Seek in a geographical table for the latitudes and longitudes of the places contained within the propoſed limits; and let them be written out in the order in which they increaſe in latitude.

60. Then, to lay down any place, lay the edge of the paſteboard ſcale to the diviſions on each ſide the chart, ſhewing the latitude of the place; ſo that the beginning of its diviſions fall on the right hand border AB; and againſt the diviſions ſhewing the longitude of the given place make a point, and this gives the poſition of the place propoſed; and in like manner are all the other places to be laid down. Draw waving lines from one point to the other, where the coaſt is contiguous, and thus the repreſentation of the lands within the propoſed limits will be delineated. Write the names to the reſpective parts, and inſert a compaſs, and the chart will be completed.

61. II. The angle, formed by the meridian and rhumb that a ſhip ſails upon, is called the *ſhip's courſe*. Thus if a ſhip ſails on the NNE. rhumb, then her courſe will be 22° 30′; and ſo of others.

62. III. The diſtance between two places lying on the ſame parallel counted in miles of the equator, or the diſtance of one place from the meridian of another counted as above on the parallel paſſing over that place, is called *meridional diſtance*; which, in plain ſailing, goes under the name of *departure*.

63. IV. Let A (N° 3.) denote a certain point on the earth's ſurface, AC its meridian, and AD the parallel of latitude paſſing through it; and ſuppoſe a ſhip to ſail from A on the NNE. rhumb till ſhe arrive at B; and through B draw the meridian BD, (which, according to the principles of plane ſailing, muſt be parallel to CA), and the parallel of latitude BC; then the length of AB, viz. how far the ſhip has ſailed upon the NNE. rhumb, is called her *diſtance*; AC or BD will be her difference of latitude, or northing; CB will be her departure, or eaſting; and the angle CAB will be the courſe. Hence it is plain, that the diſtance ſailed will always be greater than either the difference of latitude or departure; it being the hypothenuſe of a right-angled triangle, whereof the other two are the legs; except the ſhip ſails either on a meridian or a parallel of latitude; for if the ſhip ſails on a meridian, then it is plain that her diſtance will be juſt equal to her difference of latitude, and ſhe will have no departure; but if ſhe ſail on a parallel, then her diſtance will be the ſame with her departure, and ſhe will have no difference of latitude. It is evident alſo from the figure, that if the courſe be leſs than 4 points or 45 degrees, its complement, viz the other oblique angle, will be greater than 45 degrees, and ſo the difference of latitude will be greater than the departure; but if the courſe be greater than 4 points, then the difference of latitude will be leſs than the departure; and laſtly, if the courſe be juſt 4 points, the difference of latitude will be equal to the departure.

64. V. Since the diſtance, difference of latitude, and departure, form a right-angled triangle, in which the oblique angle oppoſite to the departure is the courſe, and the other its complement; therefore, having any two of theſe given, we can (by plain trigonometry) find the reſt; and hence ariſe the caſes of plane ſailing, which are as follow.

65. CASE I. Courſe and diſtance given, to find difference of latitude and departure?

66. EXAMPLE. Suppoſe a ſhip ſails from the latitude of 30° 25′ north, NNE. 32 miles, (N° 4.): Required the difference of latitude and departure, and the latitude come to? Then (by right-angled trigonometry), we have the following analogy, for finding the departure, *viz.*

As radius		10·00000
to the diſtance AC	32	1·50515
ſo is the ſine of the courſe A	22°, 30′	9·58284
to the departure BC	12·25	1·08799

ſo the ſhip has made 12·25 miles of departure eaſterly, or has got ſo far to the eaſtward of her meridian. Then for the difference of latitude or northing the ſhip has made, we have (by rectangular trigonometry) the following analogy, *viz.*

As radius		10·00000
is to the diſtance AC	32	1·50515
ſo is the coſine of courſe A	22° 30′	9·58284
to the difference of lat. AB	29·57	1·47077

ſo the ſhip has differed her latitude, or made of northing, 29·57 minutes. And ſince her former latitude was north, and her difference of latitude alſo north; therefore,

To the latitude ſailed from	30°, 25′ N.
add the difference of latitude	00 , 29·57′

and the ſum is the latitude come to 30°, 54·57′ N. By this caſe are calculated the tables of difference of latitude and departure, to every degree, point, and quarter-point of the compaſs.

67. CASE II. Courſe and difference of latitude given, to find diſtance and departure?

68. Ex. Suppoſe a ſhip in lat. 45° 25′ N. ſails NE*b*N. ½ eaſterly (N° 5.) till ſhe come to lat. 46° 55′ N. Required the diſtance and departure made good upon that courſe?—Since both latitudes are northerly, and the courſe alſo northerly; therefore,

From the latitude come to	46°, 55′
ſubtract the latitude ſailed from	45 , 25

and there remains 01°, 30′

the difference of latitude, equal to 90 miles. And (by rectangular trigonometry) we have the following analogy for finding the departure BD, *viz.*

As radius		10·00000
is to the diff. of latitude AB	90	1·95424
ſo is the tangent of courſe A	39°, 22′	9·91404
to the departure BD	73·84	1·86828

ſo the ſhip has got 73·84 miles to the eaſtward of her former meridian. Again, for the diſtance AD, we have (by rectangular trigonometry) the following proportion, *viz.*

As radius		10·00000
is to the ſecant of the courſe	39°, 22′	10·11176
ſo is the difference of lat. AB	90	1·95424
to the diſtance AD	116·4	2·06600

69. CASE III. Difference of latitude and diſtance given, to find courſe and departure?

70. Ex. Suppoſe a ſhip ſails from the latitude of 56° 50′ N. on a rhumb between ſouth and weſt, 126 miles, and ſhe is then found by obſervation to be in the latitude of 55° 40′ north: Required the courſe ſhe ſailed on, and her departure from the meridian? (N° 6.) Since the latitudes are both north, and the ſhip ſailing towards the equator; therefore,

From the latitude ſailed from	56°, 50′
ſubtract the obſerved latitude	55°, 10

and the remainder, 01°, 40′

equal to 70 miles, is the difference of latitude. By rectangular trigonometry we have the following proportion for finding the angle of the courſe F, *viz.*

As the diſtance ſailed DF	126	2·10037
is to radius		10·00000
ſo is the diff. of latitude FD	70	1·84510
to the co-ſine of the courſe F	56°, 15′	9·74473

which, becauſe ſhe ſails between ſouth and weſt, will be ſouth 56° 15′ weſt, or SW*b*W. Then, for the departure, we have (by rectangular trigonometry) the following proportion, *viz.*

As radius		10·00000
is to the diſtance ſailed DF	126	2·10037
ſo is the ſine of the courſe F	56°, 15′	9·91985
to the departure DE	104·8	2·02022

conſequently ſhe has made 104·8 miles of departure weſterly.

71. CASE IV. Difference of latitude and departure given, to find courſe and diſtance?

72. Ex. Suppoſe a ſhip ſails from the latitude of 44° 50′ north, between ſouth and eaſt, till ſhe has made 64 miles of eaſting, and is then found by obſervation to be in the latitude of 42° 56′ N. Required the courſe and diſtance made good?—Since the latitudes are both north, and the ſhip ſailing towards the equator; therefore,

From the latitude ſailed from	44°, 50′ N.
take the latitude come to	42°, 56′

and there remains - - 01°, 54′

equal to 114 miles, the difference of latitude or ſouthing. In this caſe (by rectangular trigonometry) we have the following proportion to find the courſe KGL (N° 7.) *viz.*

As the diff. of latitude GK	114	2·05690
is to radius		10·00000
ſo is the departure KL	46	1·80618
to the tangent of the courſe G	29°, 19′	9·74928

which, becauſe the ſhip is ſailing between ſouth and eaſt, will be ſouth 29° 19′ eaſt, SSE. ½ eaſt nearly. Then, for the diſtance, we ſhall have (by rectangular trigonometry) the following analogy, *viz.*

As radius		10·00000
is to the diff. of latitude GK	114	2·05690
ſo is the ſecant of the courſe	29°, 19′	10·05952
to the diſtance GL	130·8	2·11642

conſequently the ſhip has ſailed on a SSE. ½ eaſt courſe 130·8 miles.

73. CASE V. Diſtance and departure given, to find courſe and difference of latitude?

74. Ex. Suppoſe a ſhip at ſea ſails from lat. 34° 24′ N. between N. and W. 124 miles, and is found to have made of weſting 86 miles: Required the courſe ſteered, and the difference of latitude or northing made good? In this caſe (by rectangular trigonometry) we have the following proportion for finding the courſe ADB, (N° 8.) *viz.*

As the diſtance AD	124	2·09342
is to radius		10·00000
ſo is the departure AB	86	1·93450
to the ſine of the courſe D	43° 54′	9·84108

ſo that the ſhip's courſe is north 33° 45′ weſt, or NW*b*N½ weſt nearly. Then for the difference of latitude, we have (by rectangular trigonometry) the following analogy, *viz.*

As radius		10·00000
is to the diſtance AD	124	2·09342

ſo is the coſine of the courſe 43°, 54′ 9·85766
to the diff. of latitude BD 89·35 1·95108
which is equal to 1 degree and 29 minutes nearly. Hence to find the latitude the ſhip is in, ſince both latitudes are north, and the ſhip ſailing from the equator; therefore,

To the latitude ſailed from - 34°, 24′
add the difference of the latitude - 1°, 29′

the ſum is - - - 35°, 53′
the latitude the ſhip is in north.

75. Case VI. Courſe and departure given, to find diſtance and difference of latitude?

76. Ex. Suppoſe a ſhip at ſea, in the latitude of 24° 30′ ſouth, ſails SE*b*S, till ſhe has made of eaſting 96 miles: Required the diſtance and difference of latitude made good on that courſe. In this caſe (by rectangular trigonometry and by Caſe 2.) we have the following proportion for finding the diſtance, (N° 9.) viz.

As the ſine of the courſe G 33°, 45′ 9·74474
is to the departure HM 96 - 1·98227
ſo is radius - - - - 10·00000
to the diſtance GM 172·8 2·23753

Then, for the difference of latitude, we have (by rectangular trigonometry) the following analogy, viz.

As the tangent of courſe 33°, 45′ 9·82489
is to the departure HM 96 - 1·98227
ſo is radius - - - 10·00000
to the difference of latitude GH 143·7 2·15738

equal to 2°, 24′ nearly. Conſequently, ſince the latitude the ſhip ſailed from was ſouth, and ſhe ſailing ſtill towards the ſouth,

To the latitude ſailed from - 24°, 30′
add the difference of latitude - 2°, 24′

and the ſum - - 26°, 54′
is the latitude ſhe is come to ſouth.

77. VI. When a ſhip ſails on ſeveral courſes in 24 hours, the reducing all theſe into one, and thereby finding the courſe and diſtance made good upon the whole, is commonly called the *reſolving of a traverſe*.

78. VII. At ſea they commonly begin each day's reckoning from the noon of that day, and from that time they ſet down all the different courſes and diſtances ſailed by the ſhip till noon next day upon the log board; then from theſe ſeveral courſes and diſtances they compute the difference of latitude and departure for each courſe (by *Caſe* 1. *of Plane Sailing*); and theſe, together with the courſes and diſtances, are ſet down in a table, called the *traverſe table*, which conſiſts of five columns: in the firſt of which are placed the courſes and diſtances; in the two next, the difference of latitude belonging to theſe courſes, according as they are north or ſouth; and in the two laſt are placed the departures belonging to theſe courſes, according as they are eaſt or weſt. Then they ſum up all the northings and all the ſouthings; and taking the difference of theſe, they know the difference of latitude made good by the ſhip in the laſt 24 hours, which will be north or ſouth, according as the ſum of the northings or ſouthings is greateſt: the ſame way, by taking the ſum of all the eaſtings, and likewiſe of all the weſtings, and ſubtracting the leſſer of theſe from the greater, the difference will be the departure made good by the ſhip laſt 24 hours, which will be eaſt or weſt according as the ſum of the eaſtings is greater or leſs than the ſum of the weſtings; then from the difference of latitude and departure made good by the ſhip laſt 24 hours, found as above, they find the true courſe and diſtance made good upon the whole (by *Caſe* 4. *of Plane Sailing*), as alſo the courſe and diſtance to the intended port.

79. Ex. Suppoſe a ſhip at ſea, in the latitude of 48° 24′ north at noon any day, is bound to a port in the latitude of 43° 40′ north, whoſe departure from the ſhip is 144 miles eaſt; conſequently the direct courſe and diſtance of the ſhip is SSE. ½ eaſt 315 miles; but by reaſon of the ſhifting of the winds ſhe is obliged to ſteer the following courſes till noon next day, viz. SE*b*E. 56 miles, SSE. 64 miles, NW*b*W. 48 miles, S*b*W. ½ weſt 54 miles, and SE*b*S. ½ eaſt 74 miles: Required the courſe and diſtance made good the laſt 24 hours, and the bearing and diſtance of the ſhip from the intended port?

80. The ſolution of this traverſe depends entirely on the 1ſt and 4th *Caſes of Plane Sailing*; and firſt we muſt (by *Caſe* 1.) find the difference of latitude and departure for each courſe. Thus,

1 Courſe SE*b*S diſtance 56 miles.

For departure.

As radius - - - - 10·00000
is to the diſtance - 56 - 1·74819
ſo is the ſine of the courſe 33°, 45′ 9·74474
to the departure - 31·11 1·49293

For difference of latitude.

As radius - - - - 10·00000
is to the diſtance - 56 - 1·74819
ſo is the coſine of the courſe 33°, 45′ 9·91985
to the difference of latitude 46·57 1·66804

2 Courſe SSE and diſtance 64 miles.

For departure.

As radius - - - - 10·00000
is to the diſtance - 64 - 1·80618
ſo is the ſine of the courſe 22°, 30′ 9·58284
to the departure - 24·5 1·38902

For difference of latitude.

As radius - - - - 10·00000
is to the diſtance - 64 - 1·80618
ſo is the coſine of the courſe 22°, 30′ 9·96562
to the difference of latitude 59·13 1·77180

3 Courſe NW*b*W and diſtance 48 miles.

For departure.

As radius - - - - 10·00000
is to the diſtance - 48 - 1·68124
ſo is the ſine of the courſe 56°, 15′ 9·91985
to the departure - 39·91 1·60109

For difference of latitude.

As radius - - - - 10·00000
is to the diſtance - 48 - 1·68124
ſo is the coſine of the courſe 56°, 15′ 9·74474
to the difference of latitude 26·67 1·42598

4 Courſe S*b*W ½ weſt and diſtance 54 miles.

For departure.

As radius - - - - 10·00000
is to the diſtance - 54 - 1·73239
ſo is the ſine of the courſe 16°, 52′ 9·46262
to the departure - 15·67 8·19501

For difference of latitude.

As radius - - -		10·00000
is to the diſtance -	54 -	1.73239
ſo is the co-ſine of the courſe	16°, 52′	9·98090
to the difference of latitude	51·67 -	1·71329

5 Courſe SE*b*S ¼ eaſt and diſtance 74 miles.

For departure.

As radius - - -		10·00000
is to the diſtance -	74 -	1·86923
ſo is the ſine of the courſe	39°, 22′	9·80228
to the departure -	46·94	1·67151

For difference of latitude.

As radius - - -		10·00000
is to the diſtance -	74 -	1·80923
ſo is the co-ſine of the courſe	39°, 22′	9·88824
to the difference of latitude	57·21	1·75747

81. Now theſe ſeveral courſes and diſtances, together with the differences of latitudes and departures deduced from them, being ſet down in the proper columns in the traverſe table, will ſtand as follows:

82. The Traverse Table.

Courſes.	*Diſtances.*	*Diff. of Lat.* N.	*Diff. of Lat.* S.	*Departure.* E.	*Departure.* W.
SE*b*S	— 56		45·57	31·11	
SSE	— 64		59·13	24·5	
NW*b*W	— 48	26·67			39·91
S*b*W¼W	— 54		51·67		15·67
SE*b*S½E	— 94		57·21	46·94	
		26·67	214·58	102·55	55·58
			26·67	55·58	
		Diff. of Lat.	187·91	46·97	*Dep.*

83. From the above table it is plain, ſince the um of the northings is 26·67, and of the ſouthngs 214·58, the difference between theſe, viz. 187·91, will be the ſouthing made good by the hip the laſt 24 hours; alſo the ſum of the eaſtngs being 102·55, and of the weſtings 55·58, the difference 46·97 will be the eaſting or departure made good by the ſhip's laſt 24 hours; conſequently, to find the true courſe and diſtance made good by the ſhip in that time, it will be (by *Caſe* 4. *of Plane Sailing,*)

As the difference of latitude	187·91	2·27393
s to the radius -	-	10·00000
o is the departure -	46·97	1·67182
o the tangent of the courſe	14°, 03′	9·39789

which is S*b*E ¼ eaſt nearly. Then for the diſance, it will be,

As radius - - -		10·00000
s to the difference of latitude	187·91	2·27393
o is the ſecant of the courſe	14°,03′	10·01319
o the diſtance - -	193.7	2·287129

consequently the ſhip has made good the laſt 24 hours, on a S*b*E ¼ eaſt courſe, 193·7 miles: and ince the ſhip is ſailing towards the equator: herefore,

From the latitude ſailed from -	48°, 24′ N
take the diff. of latitude made good	3 , 08 S
there remains - -	45 , 16 N

the latitude the ſhip is in N. And becauſe the port the ſhip is bound for lies in the latitude of 43° 40′ N. and conſequently S. of the ſhip, therefore,

From the latitude the ſhip is in	45°, 16′ N
take the latitude ſhe is bound for	43 , 40 N
and there remains	1 , 36 N

or 96 miles, the difference of latitude or ſouthing the ſhip has to make. Again, the whole eaſting the ſhip had to make being 144 miles, and ſhe having already made 46·97 or 47 miles of eaſting; therefore the departure or eaſting ſhe ſtill has to make will be 97 miles: conſequently, to find the direct courſe and diſtance between the ſhip and the intended port, it will be (by *Caſe* 4. *of Plain Sailing,*)

As the difference of latitude	96	1·98227
is to the radius		10·00000
ſo is the departure	97	1.98677
to the tangent of the courſe	45°, 16.	10·00450

And,

As radius		10·00000
is to the difference of lat.	96	1·98227
ſo is the ſecant of the courſe	25°, 19′	10·16393
to the diſtance	136·5	2·13620

whence the true bearing and diſtance of the intended port is SE. 136·5 miles.

Sect. II. *Of* Parallel Sailing.

84. I. Since the parallels of latitude do always decreaſe the nearer they approach the pole, it is plain a degree on any of them muſt be leſs than a degree upon the equator. Now, in order to know the length of a degree on any of them, let PB (*Pl.* CCXLII. N° 10.) repreſent half the earth's axis, PA a quadrant of a meridian, and conſequently A a point on the equator, C a point on the meridian, and CD a perpendicular from that point upon the axis, which plainly will be the ſine of CP the diſtance of that point from the pole, or the co-ſine of CA its diſtance from the equator; and CD, will be to AB, as the ſine of CP, or coſine of CA, is to the radius. Again, if the quadrant PAB is turned round upon the axis PB, it is plain the point A will deſcribe the circumference of the equator whoſe radius is AB, and any other point C upon the meridian will deſcribe the circumference of a parallel whoſe radius is CD.

85. Cor. I. Hence (becauſe the circumference of circles is as their radii) it follows, that the circumference of any parallel is to the circumference of the equator, as the co-ſine of its latitude is to radius.

86. Cor. II. And ſince the whole are as their ſimilar parts, it will be, As the length of a degree on any parallel is to the length of a degree upon the equator, ſo is the co-ſine of the latitude of that parallel to radius.

87. Cor. III. Hence, as radius is to the co-ſine of any latitude, ſo are the minutes of difference of longitude between two meridians, or their diſtance in miles upon the equator, to the diſtance of theſe two meridians on the parallel in miles.

88. Cor. IV. And as the co-ſine of any parallel is to radius, ſo is the length of any arch on that parallel (intercepted between two meridians) in miles, to the length of a ſimilar arch on the equator, or minutes of difference of longitude.

89. Cor. V. Alſo, as the co-ſine of any one parallel is to the co ſine of any other parallels, ſo is the length of any arch on the firſt, in miles, to the length of the ſame arch on the other in miles.

90. II. From what has been ſaid, ariſes the ſolution of the ſeveral caſes of parallel ſailing, which are as follow;

91. Case I. Given the difference of longitude between two places, both lying on the ſame parallel; to find the diſtance between thoſe places?

92. Ex. I. Suppoſe a ſhip in the latitude of 54° 20′ N. ſails directly W. on that parallel till ſhe has differed her longitude 12° 45′; required the diſtance ſailed on that parallel? The difference of longitude reduced into minutes, or nautical miles, is 765′, which is the diſtance between the meridian ſailed from, and the meridian come to, upon the equator; then to find the diſtance between theſe meridians on the parallel of 54° 20′, or the diſtance ſailed, it will be, by *Cor.* 3. of the laſt article,

As radius - - - 10·00000
is to the co-ſine of the lat. 54°, 20′ 9·76572
ſo are the minutes of diff. lon. 765 2·88365
to the diſtance on the parallel 446·1 2·64938

93. Ex. II. A degree on the equator being 60 minutes (or nautical miles) required the length of a degree on the parallel of 51° 32′—By Cor. 3. of the laſt article, it will be

As radius - - - 10·00000
is to the co-ſine of the lat. 41°, 32′ 9·79583
ſo are the minutes in 1
degree on the equator 60 - 1·77815
to - - 37° 32′ 1·57198

the miles anſwering to a degree on the parallel of 51° 32′.—By this problem the following table is conſtructed. The columns marked at the top *D. L.* contain the *degrees of latitude* belonging to each parallel; and the columns marked *Miles*, contain the geographic miles anſwering to a degree upon theſe parallels.

94. A Table *ſhewing how many* Geographic Miles *anſwer to a* Degree *of* Longitude, *at every* Degree *of* Latitude

D. L.	Miles.	D. L.	Miles.	D. L.	Miles.	D. L.	Miles.	D. L.	Miles.
1	59·99	19	56·73	37	47·92	55	34·41	73	17·54
2	59·97	20	56·38	38	47·28	56	33·55	74	16·53
3	59·92	21	56·01	39	46·62	57	32·68	75	15·52
4	59·86	22	55·63	40	45·95	58	31·74	76	14·51
5	59·77	23	55·23	41	45·25	59	30·90	77	13·50
6	59·67	24	54·81	42	44·98	60	30·00	78	12·48
7	59·56	25	54·38	43	43·88	61	29·09	79	11·48
8	59·44	26	53·93	44	43·16	62	28·17	80	10·42
9	59·26	27	53·46	45	42·4	63	27·24	81	9·38
10	59·08	28	52·97	46	41·68	64	26·30	82	8·35
11	59·89	29	52·47	47	40·92	65	25·36	83	7·31
12	58·68	30	51·96	48	40·15	66	24·41	84	6·28
13	58·46	31	51·43	49	39·36	67	23·45	85	5·23
14	58·22	32	50·88	50	38·57	68	22·48	86	4·18
15	57·95	33	50·32	51	37·76	69	21·50	87	3·14
16	57·67	34	49·74	52	36·94	70	20·52	88	2·09
17	57·36	35	49·15	53	36·11	71	19·54	89	1·05
18	57·06	36	48·54	54	35·26	72	18·54	90	0·00

Though this table only ſhews the miles anſwering to a degree of any parallel, whoſe latitude conſiſts of a whole number of degrees; yet it may be made to ſerve for any parallel whoſe latitude is ſome number of degrees and minutes, by making the following proportion, viz. As 1 degree, or 60 minutes, is to the difference between the miles anſwering to a degree in the next greater and next leſs tabular latitude than that propoſed; ſo is the exceſs of the propoſed latitude above the next tabular latitude, to a proportional part; which ſubtracted from the miles anſwering to a degree of longitude in the next leſs tabular latitude, will give the miles anſwering to a degree in the propoſed latitude.

95. Example. Required to find the miles anſwering to a degree on the parallel of 56° 44′. The next leſs parallel of latitude in the table than that propoſed, is that of 56°, a degree of which (by the table) is equal to 33·55 miles; and the next greater parallel of latitude in the table than that propoſed is that of 57°, a degree of which is (by the table) equal to 32·68 miles; the difference of theſe is 87, and the diſtance between theſe parallels is 1 degree, or 60 minutes; also the diſtance between the parallel of 56°, and the propoſed parallel of 56° 44′, is 44 minutes: then by the proceeding proportion it will be, as 60 is to 87, ſo is 44 to 638, the difference between a degree on the parallel of 56° and a degree on the parallel of 56° 44′; which therefore, taken from 33·55, the miles anſwering to a degree on the parallel of 56°, leaves 32·912, the miles anſwering to a degree on the parallel of 56° 44′, as was required.

96. Case II. The diſtance ſailed in any parallel of latitude, or the diſtance between any two places on that parallel, being given; to find the difference of longitude?

97. Ex. Suppoſe a ſhip in the lat. of 55° 36′ N. ſails directly E. 685·6 miles: Required how much ſhe has differed her longitude?—By Cor. 4. Art. 1. of this ſection, it will be

As the co-ſine of the lat. 55° 36′ 9·75[illegible]
is to the radius - - - 10·00000
ſo is the diſtance ſailed 685·6 2·83[illegible]
to min. of diff. of lon. 1213 3·084[illegible]

which reduced into degrees, by dividing by 60, makes 20° 13′, the difference of longitude the ſhip has made. This alſo may be ſolved by help of the foregoing table, viz. by finding from it the miles anſwering to a degree on the propoſed parallel, and dividing with this the given number of miles, the quotient will be the degrees and minutes of difference of longitude required. Thus in the laſt example, we find, from the foregoing table, that a degree on the parallel of 55° 36′ is equal to 33·89 miles; by this we divide the propoſed number of miles 685·6, and the quotient is 20·13 degrees, *i. e.* 20° 13′, the difference of longitude required.

98. Case III. The difference of longitude between two places on the ſame parallel, and the diſtance between them, being given; to find the latitude of that parallel?

99. Ex. Suppoſe a ſhip ſails on a certain parallel directly weſt 624 miles, and then has differed her longitude 18° 46′, or 1126 miles: Required the latitude of the parallel ſhe ſailed upon?—By Cor. 3. Art. 1. of this ſection, it will be,

s the min. of diff. lon. 1.	1126	3·04154
s to the diſtance ſailed	624	2·79518
o is the radius	- -	10·00000
o the co-ſine of the lat.	56°, 21′	9·74364

onſequently the latitude of the ſhip or parallel he ſailed upon was 56° 21′.

100. From what has been ſaid, may be ſolved he following problems:

101. Prob. I. Suppoſe two ſhips in lat. 46° 30′ . diſtant aſunder 654 miles, ſail both directly N. 56 miles, and conſequently come to the latitude f 50° 46′ N. Required their diſtances on that paallel?—By Cor. 6. Art. 1. of this ſection, it will be,

s the co-ſine of -	46°, 30′	9·83781
s to the co-ſine of -	50°, 46′	9·80105
o is - -	657	2·81558
o - - -	601	2·77882

he diſtance between the ſhips when on the paral-el of 50° 46′.

102. Prob. II. Suppoſe two ſhips in lat. 45° 48′ . diſtance 846 miles, ſail directly N. till the diſance between them is 624 miles: Required the titude come to, and the diſtance ſailed?—By or. 5. Art. 1. of this ſection, it will be,

s their firſt diſtance -	846 -	2·92737
to their ſecond diſtance	624 -	2·79518
is the co-ſine of -	45°, 48′	7·84334
the co-ſine -	39, 04 -	9·71115

he latitude of the parallel the ſhips are come to. onſequently to find their diſtance ſailed,

rom the latitude come to -	59°, 04′
btract the latitude ſailed from -	45, 48
nd their remains - -	13, 16

qual to 796 miles, the difference of latitude or iſtance ſailed.

SECT. III. *Of* MIDDLE-LATITUDE SAILING.

103. I. When two places lie both on the ſame arallel, we ſhewed in the laſt ſection, how, from e difference of longitude given, to find the miles f eaſting or weſting between them, *et è contra*. ut when two places lie not on the ſame parallel, en their difference of longitude cannot be redued to miles of eaſting or weſting on the parallel f that place having the leaſt latitude; it would e too great. Hence the common way of reduing the difference of longitude between two plaes lying on different parallels to miles of eaſtg or weſting, *et è contra*, is by counting it on e middle parallel between the places, which is ound by adding the latitudes of the two places gether, and taking half the ſum, which will be e latitude of the middle parallel required. And ence ariſes the ſolution of the following caſes:

104. Case I. The latitudes of two places, and eir difference of longitude, given; to find the rect courſe and diſtance?

105. Ex. Required the direct courſe and diſtance etween the Lizard in the lat. of 50° 00′ N. and n. 5° 14′ W. and St Vincent in lat. 17° 10′ N. d lon 24° 20′ W.

irſt, To the latitude of the Lizard	50° 00′ N.
ld the latitude of St Vincent	17 10
he ſum is	67 10
alf the ſum or latitude of the middle parallel is	33 35 N.

Alſo the difference of latitude is	33° 50′

equal to 1970 miles of ſouthing. Again,

From the longitude of St Vincent	24° 20′ W.
take the longitude of the Lizard	05 14
there remains	19 06

equal to 1146 min. of diff. of lon. W.

Then for the miles of weſting, or departure, it will be (by *Caſe 1. of Parallel Sailing*,)

As radius		10·00000
is to the co-ſine of the middle parallel	33°, 35′	9·92069
ſo is min. diff. of lon.	1146	3·05918
to the miles of weſting	954·7	2·97987

And for the courſe it will be, (by *Caſe 4. of Plane Sailing*,)

As the diff. of lat.	1970	3·29447
is to radius		10·00000
ſo is the departure	954·7	2·97987
to the tang. of the courſe	25°, 51′	9·68540

which, becauſe it is between S. and W. it will be SSW ¼ weſt nearly

For the diſtance, it will be, by the ſame caſe,

As radius		10·00000
is to the diff. of lat.	1970	3·29447
ſo is the ſecant of the courſe	25°, 51′	10·04579
to the diſtance	2189	3·34026

whence the direct courſe and diſtance from the Lizard to St Vincent is SSW ¼ 2189 W. miles.

106. Case II. One latitude, courſe, and diſtance ſailed being given; to find the other lat. and difference of lon.?

107. Ex. Suppoſe a ſhip in lat. 50° 00′ N. ſails S. 50° 06′ W. 150 miles: Required the latitude the ſhip has come to, and how much ſhe has differed her longitude?—Firſt, For the difference of latitude, it will be, (by *Caſe 1. of Plane Sailing*,)

As radius		10·00000
is to the diſtance	150	2·17609
ſo is the co-ſine of the courſe	50°, 06′	9·80716
to the diff. of lat	96·22	1·98325

equal to 1°, 36′. And ſince the ſhip is ſailing towards the equator: therefore,

From the latitude ſhe was in	50°, 00′
take the diff. of lat.	1, 36
and there remains	48, 24

the latitude ſhe has come to N. Conſequently the latitude of the middle parallel will be 49° 12′. Then for departure or weſting, it will be, by the ſame *Caſe*,

As radius		10·00000
is to the diſtance	150	2·17609
ſo is the ſine of the courſe	50°, 06′	9·88489
to the departure	115·1	2·06098

As for the difference of longitude, it will be, (by *Caſe 2. of Plain Sailing*,)

As the co-ſine of the middle parallel	49° 12′	9·81519
is to radius		10·00000
ſo is the departure	115·1	2·06098
to the min. diff. of lon.	176·1	2·24579

equal to 2° 56′, which is the difference of longitude the ſhip has made weſterly.

108. Case III. Courſe and difference of latitude given; to find the diſtance ſailed, and difference of longitude?

109. Ex. Suppoſe a ſhip in the latitude of 53°

34′ N. ſails SE*b*S till by obſervation ſhe is found to be in the latitude of 51° 12′, and conſequently has differed her latitude 2° 22′, or 142 miles: Required the diſtance ſailed, and the difference of longitude?—Firſt, for the departure, it will be, (by *Caſe* 2. *of Plane Sailing*,)

As radius		10′00000
is to the diff. of lat.	142	2′15229
ſo is the tangent of courſe	33°, 45′	9′82489
to the departure	94′88	1′97718

And for the diſtance it will be (by the ſame *Caſe*,)

As radius		10′00000
is to the diff. of lat.	142	2′15229
ſo is the ſecant of the courſe	33°, 45′	10′08015
to the diſtance	170′8	2′23244

Then, ſince the latitude ſailed from was 53° 34′ N. and the latitude come to 51° 12′ N.; therefore the middle parallel will be 52° 23′; and conſequently, for the difference of longitude, it will be, (by *Caſe* 2. *of Parallel Sailing*,)

As the co-ſine of the middle parallel	52°, 23′	9′78560
is to the departure	94′88	1′97718
ſo is radius		10′00000
to min. of diff. of longitude	155.5	2′19158

equal to 2° 35′, the difference of longitude E.

110. CASE IV. Difference of latitude and diſtance ſailed, given; to find the courſe and difference of longitude?

111. Ex. Suppoſe a ſhip in the latitude of 43° 26′ N. ſails between S. and E. 246 miles, and then is found by obſervation to be in lat. of 41° 06′ N. Required the direct courſe and difference of longitude?—Firſt, For the courſe, it will be, (by *Caſe* 3. *of Plane Sailing*.)

As the diſtance	246	2′39094
is to radius		10′00000
ſo is the diff. of lat.	140	2′14613
to the co-ſine of the courſe	55°, 19′	9′75519

which, becauſe the ſhip ſails between S. and E. will be ſouth 55° 19′ eaſt, or SE*b*E. nearly. Then for departure, it will be, by the ſame *Caſe*,

As radius		10′00000
is to the diſtance	246	2′39094
ſo is the ſine of the courſe	55°, 19′	9′91504
to the departure	202′3	2′30598

Laſtly for the difference of lon. it will be, (by *Caſe* 2. *of Parallel Sailing*,)

As the co-ſine of the mid. par.	42°, 16′	9′86924
is to the departure	302′3	2′30598
ſo is radius		10′00000
to min. of diff. of lon.	273′3	2′43674

equal to 4° 33′, the difference of lon. E.

112. CASE V. Courſe and departure given, to find the difference of latitude, difference of longitude, and diſtance ſailed?

113. Ex. Suppoſe a ſhip in the latitude of 48° 23′ N. ſails SW*b*S, till ſhe has made of weſting 123 miles: Required the latitude come to, the difference of longitude, and the diſtance ſailed? Firſt, For the diſtance, it will be, (by *Caſe* 6. *of Plane Sailing*,)

As the ſine of the courſe	33°, 45′	6′74474
is to the departure	123	2′08991
ſo is radius		10′00000
to the diſtance	221′4	2′34517

And for the difference of lat. it will be, by the ſame *Caſe*,

As the tang. of courſe	33°, 45′	9′82489
is to the departure	123	2′08991
ſo is radius		10′00000
to the diff. of lat.	184	2′26501

equal to 3° 04′: And ſince the ſhip is ſailing towards the equator, the lat. come to will be 45° 19′ N, and conſequently the middle parallel will be 46° 51′. Then to find the difference of longitude, it will be, (by *Caſe* 2. *of Parallel Sailing*,)

As the co-ſine of mid. par.	46°, 51′	9′83[illegible]
is to the departure	123	2′08[illegible]
ſo is radius		10′00000
to min. of diff. of longit.	180	2′25[illegible]

which is equal to 3° 00′, the difference of longitude weſterly.

114. CASE VI. Difference of latitude and departure given, to find courſe, diſtance, and difference of longitude?

115. Ex. Suppoſe a ſhip in lat. 46° 37′ N. ſails between S. and E. till ſhe has made of eaſting 14[illegible] miles, and is then found by obſervation to be in lat. 43° 24′ N. Required the courſe, diſtance, and difference of longitude?—Firſt, By *Caſe* 4. *of Plane Sailing*, it will be for the courſe,

As the diff. of lat.	193	2′28[illegible]
is to the departure	146	2′16[illegible]
ſo is radius		10′00000
to the tang. of the courſe	36° 55	9′8[illegible]

which, becauſe the ſhip is ſailing between S. and E. will be S. 36° 55′ E. or SE*b*S ¼ eaſt nearly. For the diſtance, it will be, by the ſame *Caſe*,

As radius		10′00000
is to the diff. of lat.	193	2′28[illegible]
ſo is the ſecant of the courſe	36°, 55′	10′09[illegible]
to the diſtance	241′4	2′38[illegible]

Then for the difference of lon. it will be, by *Caſe* 2. *of Parallel Sailing*,

As the co-ſine of the mid. par.	45°, 00′	9′84[illegible]
is to the departure	146	2′16[illegible]
ſo is radius		10′00000
to min. of diff. of lon.	205	2′31[illegible]

equal to 3° 25′ the difference of lon. E.

116, CASE VII. Diſtance and departure given, to find difference of latitude, courſe, and difference of longitude?

117. Ex. Suppoſe a ſhip in the latitude of [illegible] 40′ N. ſails between S. and E. 165 miles, and is then made of eaſting 112′5 miles: Required the difference of latitude, courſe, and difference of longitude? Firſt, for the courſe, it will be, by *Caſe* 5. *of Plane Sailing*,

As the diſtance	165	2′21[illegible]
is to radius		10′00000
ſo is the departure	102′5	2′05[illegible]
to the ſine of the courſe	42°, 59′	9′8[illegible]

which, becauſe the ſhip ſails between S. and E. will be S. 42° 59′ E. or SE*b*E ¾ eaſt nearly. And for the difference of latitude, it will be, by the ſame *Caſe*,

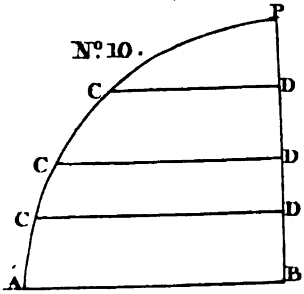
As radius		10′00000
is to the diſtance	165	2′21[illegible]
ſo is the coſine of the courſe	42°, 59′	9′86[illegible]
to the difference of lat.	120′7	2′08[illegible]

equal to 2° 00′; conſequently the latitude come to will be 31° 40′ N. and the latitude of the middle parallel will be 32° 40′. Hence, to find the difference of longitude, it will be, by *Caſe* 2. *of Parallel Sailing*,

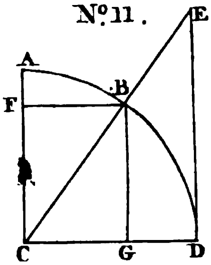
NAVIGATION.

Plate CCXLII

No. 10.



No. 11.



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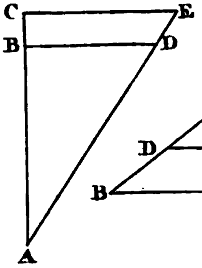

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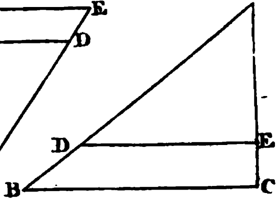

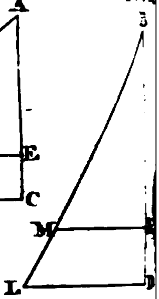

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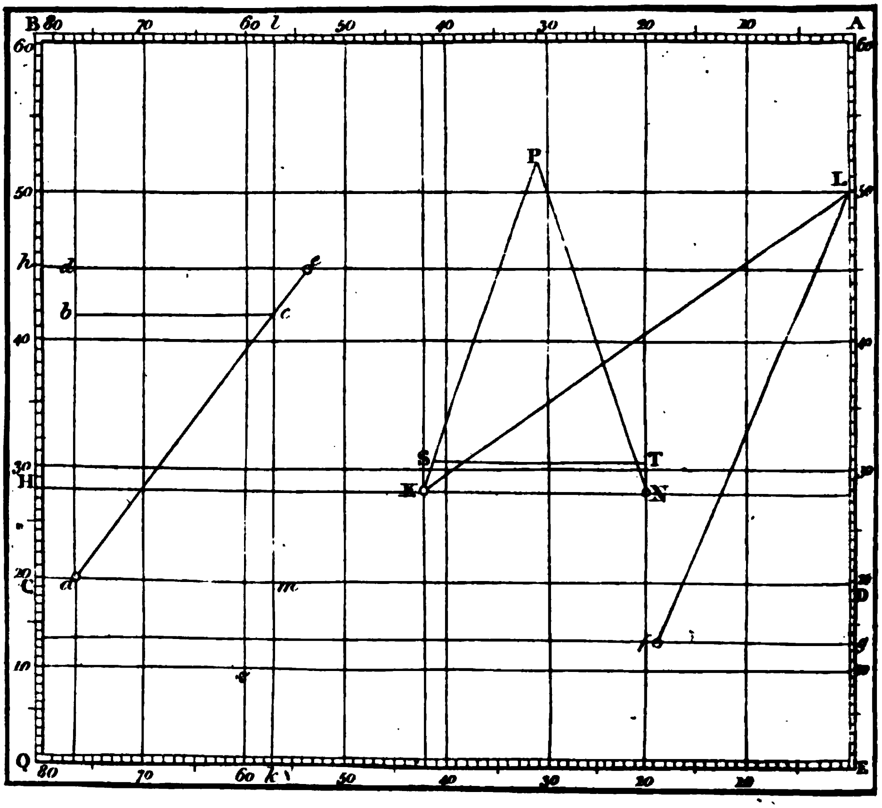

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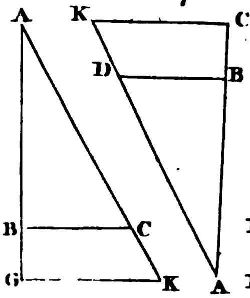

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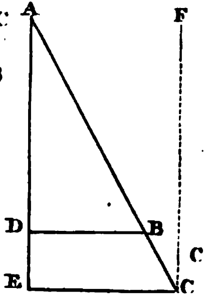

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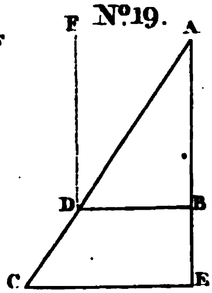

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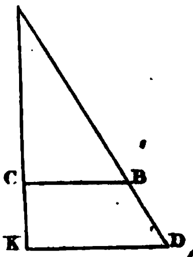

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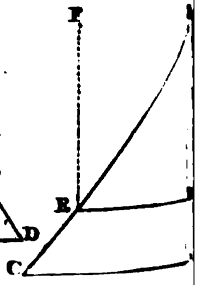

T. Clark Sculp.t Edin.r

ɩs the coſine of the mid. par.	32°, 40′	9·92522
ɩ to the departure -	112·5	2·05115
ɔ is radius -	-	10·00000
o min. of diff. of long.	133·6	2·12593

qual to 2° 13′ nearly, the difference of lon. E.

118. Case VIII. Difference of longitude and eparture given; to find difference of latitude, ourſe, and diſtance failed?

119. Ex. Suppoſe a ſhip in lat. 50° 46′ N. ſails etween S. and W. till her difference of lon. is 3° ɜ′, and is then found to have departed from her ɔrmer meridian 126 miles: Required the differ-ɔce of latitude, courſe, and diſtance ſailed?—irſt, for the latitude ſhe has come to, it will be, y *Caſe 3. of Parallel Sailing*,

ɩs min. of diff. of long.	192 -	2·28330
to the departure	126	2·10037
ɔ is radius		10·00000
ɔ the coſine of mid. par.	48°, 59′	9·81707

low ſince the middle latitude is equal to half the ım of the two latitudes (by art. 1. of this ſect.) nd ſo the ſum of the two latitudes equal to double the middle latitude; it follows, that if from double the middle latitude we ſubtract any one of the ıtitudes, the remainder will be the other. Hence om twice 48° 59′, *viz.* 97° 58′, taking 50° 46′, ɪe latitude ſailed from, there remains 47° 12′, the ıtitude come to; conſequently the difference of ıtitude is 3° 34′, or 214 minutes. Then for the ourſe, it will be, by *Caſe 4. of Plane Sailing*,

ɩs diff. of lat.	414	2·33041
ɩ to radius		10·00000
ɔ is the departure	126	2·10037
ɔ the tang. of the courſe	30°, 29′	9·76996

which, becauſe it is between S. and W. will be S. 0° 29′ W. or SSW $\frac{3}{4}$ weſt nearly.—And for the iſtance, it will be, by the ſame *Caſe*,

ɩs radius		10·00000
ɩ to the diff. of lat.	214	2·33041
ɔ is the ſecant of the courſe	30°, 29′	10·06461
ɔ the diſtance	248·4	2·39502

120. II. From what has been ſaid, it will be ıſy to ſolve a traverſe, by the rules of *Middle-ıtitude Sailing*.

121. Ex. Suppoſe a ſhip in lat. 43° 25′ N. ſails pon the following courſes, *viz.* SW*b*S 63 miles, SW $\frac{1}{2}$ weſt 45 miles, S*b*E 54 miles, and SW*b*W 4 miles: Required the latitude the ſhip has come ɔ, and how far ſhe has differed her longitude?—irſt, By *Caſe 2. of this Sect.* find the difference of ıtitude and difference of longitude belonging to ıch courſe and diſtance, and they will ſtand as ı the following table:

Courſes.	*Diſt.*	*Diff. of Lat.*		*Diff. of Long.*	
		N.	*S.*	*E.*	*W.*
SW*b*S	—63	——	52·4	——	47·85
SSW$\frac{1}{2}$W	—45	——	39·7	——	28·62
S*b*E	—54	——	53·0	14·75	——
SW*b*W	—74	——	41·1	——	81·08
					157·55
		Diff. of Lat.	186·2		13·75
				Diff. of Long.	143·80

Hence it is plain the ſhip has differed her latitude 86° 2′ or 3° 6′, and ſo has come to the lat. of 40° 19′ N. and has made of difference of lon. 143° 8′ or 2° 23′ 48″ W.

122. III. This method of ſailing, though it be not ſtrictly true, yet it comes very near the truth, as will be evident, by comparing an example wrought by this method with the ſame wrought by the method delivered in the next ſection, which is ſtrictly true; and it ſerves, without any conſiderable error, in runnings of 450 miles between the equator and parallel of 30 degrees of 300 miles, between that and the parallel of 60 degrees, and of 150 miles as far as there is any occaſion, and conſequently muſt be ſufficiently exact for 24 hours run.

Sect. IV. *Of* Mercator's sailing.

123. I. Though the meridians all meet at the pole, and the parallels to the equator continually decreaſe in proportion to the coſines of their latitudes; yet in old ſea-charts the meridians were drawn parallel to one another, and conſequently the parallels of latitude made equal to the equator, and ſo a degree of longitude on any parallel as large as a degree on the equator: alſo in theſe charts the degrees of latitude were ſtill repreſented (as they are in themſelves) equal to each other, and to thoſe of the equator. By theſe means the degrees of longitude being increaſed beyond their juſt proportion, and the more ſo the nearer they approach the pole, the degrees of latitude at the ſame time remaining the ſame, it is evident, places muſt be very erroneouſly marked down upon theſe charts with reſpect to their latitude and longitude, and conſequently their bearings from one another very falſe.

124. II. To remedy this inconvenience, ſo as ſtill to keep the meridians parallel, it is plain we muſt protract or lengthen the degrees of latitude in the ſame proportion as thoſe of longitude are, that ſo the proportion in eaſting and weſting may be the ſame with that of ſouthing and northing, and conſequently the bearings of places from one another be the ſame upon the chart as upon the globe itſelf.—Let ABD (*pl.* CCXLII. *No.* 11.) be a quadrant of a meridian, A the pole, D a point on the equator, AC half the axis, B any point upon the meridian, from which draw BF perpendicular to AC, and BG perpendicular to CD; then BG will be the ſine, and BF or CG the coſine of BD, the latitude of the point B; draw D the tangent and CE the ſecant of the arch CD. It has been demonſtrated in Sect. II. that any arch of a parallel is to the like arch of the equator as the coſine of the latitude of that parallel is to radius. Thus any arch, as a minute on the parallel deſcribed by the point B, will be to a minute on the equator as BF or CG is to CD; but ſince the triangles CGB CDE are ſimilar, therefore CG will be to CD as CB is to CE; *i. e.* the coſine of any parallel is to radius as radius is to the ſecant of the latitude of that parallel. But it has been juſt ſhown, that the coſine of any parallel is to radius as the length of any arch, as a minute on that parallel, is to the length of the like arch on the equator; therefore the length of any arch, as a minute on any parallel, is to the length of the like arch on the equator as radius is to the ſecant of the latitude of that parallel: and ſo the length

of any arch, as a minute on the equator, is longer than the like arch of any parallel, in the ſame proportion as the ſecant of the latitude of that parallel is to radius. But ſince, in this projection the meridians are parallel, and conſequently each parallel of latitude equal to the equator, it is plain the length of any arch, as a minute on any parallel, is increaſed beyond its juſt proportion, at ſuch rate as the ſecant of the latitude of that parallel is greater than radius; and therefore, to keep up the proportion of northing and ſouthing to that of eaſting and weſting upon this chart as it is upon the globe itſelf, the length of a minute upon the meridian at any parallel muſt alſo be increaſed beyond its juſt proportion at the ſame rate, *i. e.* as the ſecant of the latitude of that parallel is greater than radius. Thus, to find the length of a minute upon the meridian at the latitude of 75°, ſince a minute of a meridian is everywhere equal on the globe, and alſo equal to a minute upon the equator, let it be repreſented by unity; then making it as radius is to the ſecant of 75°, ſo is unity to a fourth number, which is 3·864 nearly; and conſequently, by whatever line you repreſent one minute on the equator of this chart, the length of one minute on the enlarged meridian at lat. 75° or the diſtance between the parallel of 75° 00′ and the parallel of 75° 01′, will be equal to 3 of theſe lines, and $\frac{864}{1000}$ of one of them. By making the ſame proportion, it will be found, that the length of a minute on the meridian of this chart at the parallel of 60°, or the diſtance between the parallel of 60° 00′ and that of 60° 01′, is equal to two of theſe lines. After the ſame manner, the length of a minute on the enlarged meridian may be found at any latitude; and conſequently, beginning at the equator, and computing the length of every intermediate minute between that and any parallel, the ſum of all theſe ſhall be the length of a meridian intercepted between the equator and that parallel; and the diſtance of each degree and minute of latitude from the equator upon the meridian of this chart, computed in minutes of the equator, forms what is commonly called a *table of meridional parts*. If the arch BD, *Plate* CCLXII, (No. 11.) repreſent the latitude of any point B. then (CD being radius) CE will be the ſecant of that latitude; but it has been ſhown above, that radius is to ſecant of any latitude as the length of a minute upon the equator is to the length of a minute on the meridian of this chart at that latitude; therefore CD is to CE as the length of a minute on the equator is to the length of a minute upon the meridian at the latitude of the point B. Conſequently, if the radius CD be taken equal to the length of a minute upon the equator, CE, of the ſecant of the latitude, will be equal to the length of a minute upon the meridian at that latitude. Therefore, in general, if the length of a minute upon the equator be made radius, the length of a minute upon the enlarged meridian will be everywhere equal to the ſecant of the arch contained between it and the equator.

125. Cor. 1. Hence it follows, ſince the length of every intermediate minute between the equator and any parallel is equal to the ſecant of the latitude, (the radius being equal to a minute upon the equator), the ſum of all theſe lengths, or the diſtance of that parallel on the enlarged meridian from the equator, will be equal to the ſum of all the ſecants, to every minute contained between it and the equator.

126. Cor. 2. Conſequently, the diſtance between any two parallels on the ſame ſide of the equator is equal to the difference of the ſums of all the ſecants contained between the equator and each parallel, and the diſtance between any two parallels on contrary ſides of the equator is equal to the ſum of the ſums of all the ſecants contained between the equator and each parallel.

127. III. By the tables of meridional parts given by all the writers on this ſubject, may be conſtructed the nautical chart, commonly called *Mercator's chart*. Thus, for example, let it be required to make a chart that ſhall commence at the equator, and reach to the parallel of 60° and ſhall contain 80° of lon. Draw the line EQ repreſenting the equator, (ſee *Pl.* CCXLII. N° 11.); then take, from any convenient line of equal parts, 4800, (the number of minutes contained in 80 degrees) which ſet of from E to Q, and this will determine the breadth of the chart. Divide the line EQ, into 8 equal parts, in the points 10, 20, 30, &c. each containing 10 degrees; and each of theſe, divided into 10 equal parts, will give the ſingle degrees upon the equator: then through the points E, 10, 12, &c. drawing lines perpendicular to EQ, theſe ſhall be meridians. From the ſcale of equal parts take 4527·4, (the meridional parts anſwering to 60 degrees), and ſet that off from E to A and from Q to B, and join AB; then this line will repreſent the parallel of 60, and will determine the length of the chart. Again, from the ſcale of equal parts take 603·1, (the meridional parts anſwering to 10 degrees), and ſet that off from E to 10 on the line EA; and through the point 10 draw 10, 10, parallel to EQ; and this will be the parallel of 10 degrees. The ſame way, ſetting off from E on the line EA the meridional parts anſwering to each degree, &c. of latitude, and through the ſeveral points drawing lines parallel to EQ, we ſhall have the ſeveral parallels of latitude.

128. If the chart does not commence from the equators, but is only to ſerve for a certain diſtance on the meridian between two given parallels on the ſame ſide of the equator, then the meridians are to be drawn as in the laſt example; and for the parallel of latitude you are to proceed thus: viz. From the meridional parts anſwering to each point of latitude in your chart, ſubtract the meridional parts anſwering to the leaſt latitude, and ſet off the differences ſeverally, from the parallel of the leaſt latitude, upon the two extreme meridians; and the lines joining theſe points of the meridians ſhall repreſent the ſeveral parallels upon your chart. Thus, let it be required to draw a chart that ſhall ſerve from the latitude of 20° N. to 60° N. and that ſhall contain 80° of lon. Having drawn the line DC to repreſent the parallel of 20 degrees (ſee N° 12.), and the meridians to it, as in the foregoing example; let off 663·3 (the difference between the meridional parts anſwering to 30° and thoſe of 20° from D to 30 and from C to 30; then join the points 30 and 30

ith a right line, and that ſhall be the parallel of). Alſo ſet off 1397·6 (the difference between e meridional parts anſwering to 40 degrees, and oſe of 20 degrees) from D to 40 and from C to ; and joining the points 40 and 40 with a right e, that ſhall be the parallel of 40. And proeeding after the ſame way; we may draw as any of the intermediate parallels as we have ocſion for. But if the two parallels of latitude, that ound the chart are on the contrary ſides of the quator, then draw a line repreſenting the equar and meridians to it, as in the firſt example; d from the equator ſet off on each ſide of it the eral parallels contained between it and the iven parallels as above, and your chart is finiſhd. If Mercator's chart, conſtructed as above, ith its equator extended on each ſide of the point 180°, and if the ſeveral places on the ſurface f the earth be there laid down according to their titudes and longitudes, we ſhall have what is ommonly called *Mercator's map of the earth.* See l. CCXLII. *fig.* 2. This map is not to be conſiderd as a ſimilar and juſt repreſentation of the earth's rface; for in it the figures of countries are diſrted, eſpecially near the poles: but ſince the egrees of latitude are everywhere increaſed in the me proportion as thoſe of longitude are, the earings between the places will be the ſame in his chart as on the globe; and the proportions etween the latitudes, longitudes, and nautical iſtances, will alſo be the ſame on this chart as n the globe itſelf; by which means the ſeveral aſes of navigation are ſolved after a moſt eaſy anner, and adapted to the meaneſt capacities. V. B. In all charts the upper part is the N. ſide, nd the lower part or bottom is the S. ſide; the art towards the right hand is the E. and that towards the left hand is the W. ſide of the chart.

129. IV. Since, according to this projection, he meridians are parallel right lines; it is plain, hat the rhumbs, which form always equal angles ith the meridians, will be ſtraight lines; which roperty renders this projection of the earth's ſurace much more eaſy and proper for the uſe than ay other.

130. V. This method of projecting the earth's urface upon a plane was firſt invented by Mr dward Wright, but firſt publiſhed by Mercator; nd hence the ſailing by the chart was called *Mercator's ſailing.*

131. VI. In *Pl.* CCXLII. let A and E repreſent wo places upon Mercator's chart, AC the meriian of A, and CE the parallel of latitude paſſing hrough E; draw AE, and ſet off upon AC, the ength AB equal to the number of minutes contained in the difference of latitude between the wo places, and taken from the ſame ſcale of qual parts the chart was made by, or from the quator, or any graduated parallel of the chart, nd through B draw BD parallel to CE, meeting E in D. Then AC will be the enlarged difference of latitude, AB the proper difference of laitude, CE the difference of longitude, BD the eparture, AE the enlarged diſtance, and AD the roper diſtance between the two places A and ; alſo the angle BAD will be the courſe, and E the rhumb-line between them.

132. VII. Now ſince in the triangle ACE, BD is parallel to one of its ſides CE; it is plain the triangles ACE, ABD, will be ſimilar, and conſequently the ſides proportional. Hence ariſe the ſolutions of the ſeveral caſes in this ſailing, which are as follow:

132. CASE I. The latitudes of two places given, to find the meridional or enlarged difference of latitude between them? Of this caſe there are three varieties, *viz.* either one of the places lies on the equator, or both on the ſame ſide of it; or laſtly, on different ſides.

133. I. If one of the propoſed places lies on the equator, then the meridional difference of latitude is the ſame with the latitude of the other place, taken from the table of meridional parts.

134. Ex. Required the meridional difference of latitude between St. Thomas, lying on the equator, and St Antonio in the latitude of 17° 20′ N. We look in the table for the meridional parts anſwering to 17° 20′, and find it to be 1056·2, the enlarged difference of latitude required.

135. II. If the two propoſed places be on the ſame ſide of the equator, then the meridional difference of latitude is found by ſubtracting the meridional parts anſwering to the leaſt latitude from thoſe anſwering to the greateſt, and the difference is that required.

136. Ex. Required the meridional difference of latitude between the Lizard in lat. 50° 00′ N. and Antigua in lat. 17° 30′ N.?

From the meridional parts of 50°, 00′ 3474·5
ſubtract the meridional parts of 17, 30 1066·7

there remains 2407·8
the meridional difference of latitude required.

137. III. If the places lie on different ſides of the equator, then the meridional difference of latitude is found by adding together the meridional parts anſwering to each latitude, and the ſum is that required.

138. Ex. Required the meridional difference of latitude between Antigua in lat. 17° 30′ N. and Lima in Peru, in lat. 12° 30′ S.

To the merid. parts anſwering to 17°, 30′ 1066·7
add thoſe anſwering to 12, 30 756·1

the ſum is 1822·8
the meridional difference of latitude required.

139. CASE II. The latitudes and longitudes of two places given, to find the direct courſe and diſtance between them?

140. Ex. Required to find the direct courſe and diſtance between the Lizard in the latitude of 50° 00′ N. and Port Royal in Jamaica, in latitude 17° 40′; differing in lon. 70° 46′, Port Royal lying ſo far to the W. of the Lizard.

141. PREPARATION. From the latitude of the Lizard 50°, 00′
ſubtract the latitude of Port Royal 17, 40

and there remains 32° 20′
equal to 940′, the proper difference of latitude. Then from the meridional parts of 50°, 00′ 3474·5
ſubtract thoſe of 17, 40 1077·2

and there remains 2397·3
the meridional or enlarged difference of longitude.

142. Geometrically. Draw the line AC (*No.* 14.) repreſenting the meridian of the Lizard at A, and ſet off from A, upon that line, AE equal to 1940 (from any ſcale of equal parts) the proper difference of latitude, alſo AC equal to 2397·3 (from the ſame ſcale) the meridional or enlarged difference of latititude. Upon the point C raiſe CB perpendicular to AC, and make CB equal to 4246, the minutes of difference of longitude. Join AB, and through E draw ED parallel to BC: ſo the caſe is conſtructed; and AD, applied to the ſame ſcale of equal parts the other legs were taken from, will give the direct diſtance, and the angle DAE meaſured by the line of chords will give the courſe.

143. By Calculation. For the angle of the courſe EAD, it will be (by rectangular trigonometry), AC : CB : : R : T, BAC.

i. e. As the merid. diff. of lat.	2397·3	3·37970
is to the difference of lon.	4246·0	3·62798
ſo is radius		10·00000
to the tang. of the direct courſe	60° 33′	10·34828

which, becauſe Port Royal is S. of the Lizard, and the difference of lon. W. will be S. 60° 33′ W. or SW*b*W ½ weſt nearly. Then for the diſtance AD, it will be (by rectangular trigonometry), R : AE : : Sec. A : AD,

i. e. As the radius		10·00000
is the proper diff. of lat.	1940	3·28780
ſo is the ſecant of the courſe	60° 33′	10·30833
to the diſtance	3945·6	3·59613

conſequently the direct courſe and diſtance between the Lizard and Port Royal in Jamaica, is S. 60° 33′ 3945·6 miles.

144. Case III. Courſe and diſtance ſailed, given to find difference of latitude and difference of longitude?

145. Ex. Suppoſe a ſhip from the Lizard in the latitude of 50° 00′ north, ſails ſouth 35° 40′, weſt 156 miles: Required the latitude come to, and how much ſhe has altered her longitude?

146. Geometrically. 1. Draw the line BK (*Pl.* CCXLII. *No.* 15.), repreſenting the meridian of the Lizard at B; from B draw the line BM, making with BK an angle equal to 35° 40′, and upon this line ſet off BM equal to 156 the given diſtance, and from M let fall the perpendicular MK upon BK. Then for BK the proper difference of latitude, it will be (by rect. trigon.) R : MB : : S, BMK : BK;

i. e. As radius		10·00000
is to the diſtance	156	2·19312
ſo is the co-ſine of the courſe	35° 40′	9·90978
to the proper difference of lat.	127	2·10290

equal to 2° 07′; and ſince the ſhip is ſailing from a north latitude towards the ſouth, therefore the latitude come to will be 47° 53′ north. Hence the meridional difference of latitude will be 193·4.

147. I. Produce BK to D, till BD be equal to 193·4; through D draw DL parallel to MK, meeting DM produced in L; then DL will be the difference of longitude; to find which by calculation, it will be (by rect. trigon.) R : BD : : T, LBD : DL, *i. e.* as radius 10·00000

is to the meridional diff. of lat.	193·4	2·28646
ſo is the tangent of the courſe	35° 40′	9.85594
to min. of diff. of long.	138.8	2·14240

equal to 2° 18′ 48″, the difference of longitude the ſhip has made weſterly.

148. Case IV. Given courſe and both latitudes, viz. the latitude ſailed from, and the latitude come to; to find the diſtance ſailed, and the difference of longitude?

149. Ex. Suppoſe a ſhip in latitude 50° 20′ N. ſails ſouth 33° 45′ E. until by obſervation ſhe is found to be in lat. 51° 45′ N. Required the diſtance ſailed and the difference of longitude?

150. Geometrically. Draw AB (*No.* 16.) to repreſent the meridian of the ſhip in the firſt latitude, and to ſet off from A to B 155, the minutes of the proper difference of latitude: Alſo AG equal to 257·9, the minutes of the enlarged difference of latitude. Through B and G draw the lines BC and GK perpendicular to AG; alſo draw AK, making with AG an angle of 33° 45′, which will meet the two former lines in the points C and K; ſo the caſe is conſtructed, and AC and GK may be found from the line of equal parts; to find which,

151. By Calculation; firſt, for the difference of longitude, it will be (by rect. trigon.) R : AG : : T, GAK : GK;

i. e. As radius		10·00000
is to the enlarged diff. of lat.	257·9	[illegible]
ſo is the tang. of the courſe	33° 45′	[illegible]
to min. of diff. of longitude	172·3	[illegible]

equal to 2° 52′ 18″, the difference of longitude the ſhip has made eaſterly. This might alſo have been found, by firſt finding the departure BC (by *Caſe* 2. *of Plane Sailing*), and then it would be AB : BC : : AG : GK, the difference of longitude required. Then for the direct diſtance AC it will be (by rect. trigon.) R : AB : : Sec. A : AC

i. e. As radius		10·00000
is to the proper diff. of lat.	155	[illegible]
ſo is the ſecant of the courſe	33° 45′	[illegible]
to the direct diſtance	186·4	[illegible]

conſequently the ſhip has ſailed S. 33° 45′ E. [illegible] miles, and has differed her longitude [illegible] 18″ E.

152. Case V. Both latitudes and diſtances ſailed given, to find the direct courſe and and difference of longitude?

153. Ex. Suppoſe a ſhip from the latitude of 45° 26′ N. ſails between N. and E. 195 miles, and then by obſervation ſhe is found to be in lat. [illegible] N. Required the direct courſe and difference of longitude?

154. Geomet. Draw AB (*No.* 17.) equal to 160, the proper difference of latitude, and from the point B raiſe the perpendicular BD; then take 195 in your compaſſes, and ſetting one foot of them in A, with the other croſs the line BD in D. Produce AB, till AC be equal to [illegible] the enlarged difference of latitude. Through C draw CK parallel to BD, meeting AD produced in K; ſo the caſe is conſtructed; and the angle A may be meaſured by the line of chords, and CK by the line of equal parts: To find which,

155. By Calculation: Firſt, For the angle of the courſe BAD, it will be (by rect. trigon.) AB : R : : AD : Sec. A.

i. e. As the proper diff. of lat.	160	[illegible]
is to radius		10·00000
ſo is the diſtance	195	[illegible]
to the ſecant of the courſe	34° 52′	[illegible]

which, becauſe the ſhip is ſailing between N. and E.

E will be N. 34° 52′ E. or NE*b*N. 1° 7′ eaſterly. Then for the difference of lon. it will be (by ect. trigon.) R : AC : : T, A : CK.

. *e.* As radius		10·00000
s to the merid. diff. of lat.	233·6	2·36847
o is the tang. of the courſe	34° 52′	9·84307
o min. of diff. of lon.	162·8	2·21154

qual to 2° 42′ 48″; the difference of lon. eaſterly.

156. Case VI. One latitude, courſe, and difference of longitude, given; to find the other latitude nd diſtance ſailed?

157. Ex. Suppoſe a ſhip from lat. 48° 50′ N. ils S. 34° 40′ W. till her difference of lon. is 2° 2′: Required the latitude come to, and the diſ- ance ſailed?

158. Geometrically I. Draw AE (*No.* 18.) to epreſent the meridian of the ſhip in the firſt latiude, and make the angle EAC equal to 34° 40′ he angle of the courſe; then draw FC parallel to E, at the diſtance of 164, the minutes of difference of longitude, which will meet AC in the oint C. From C let fall upon AE the perpenicular CE; then AE will be the enlarged difference of latitude. To find which by calculation, will be (by rect. trigon.) T, A : R : : CE : AE,

e. As the tang. of the courſe	34° 40′	9·83984
to the radius		10·00000
is min. of diff. of lon.	164	2·21484
the enlarged diff. of latitude	237·2	2·37500

nd becauſe the ſhip is ſailing from a N. latitude outherly, therefore

rom the merid. parts of e latitude ſailed from	48° 50′	3366·9
ke the merid. difference of latit.		237·2
nd there remains		3129·7

e meridional parts of the latitude come to, viz. 6° 09′. Hence for the proper difference of titude,

rom the latitude ſailed from	48° 50′N
ke the latitude come to	46 09 N
d there remains	2 41 N

ual to 161, the minutes of difference of lat.

159. II. Set off upon AE the length AD equal to 1, the proper difference of latitude, and through draw DB parallel to CE: then AB will be the ect diſtance. To find which by calculation, it ill be (by rect. trigon.) R : AD : : Sec. A : AB.

e. As radius		10·00000
to the proper diff. of latitude	161	2·20683
is the ſecant of the courſe	34° 40′	10·08488
the direct diſtance	195·8	2·29171

160. Case VII. One latitude, courſe, and derture given; to find the other latitude, diſtance iled, and difference of longitude?

161. Ex. Suppoſe a ſhip ſails from 54° 36′ N. ° 33′ E. until ſhe has made of departure 116 iles: Required the lat. ſhe is in, her direct diſtance iled, and how much ſhe has altered her longitude?

162. Geomet. I. Having drawn the meridian AB, *Vo.* 19.) make the angle BAD equal to 42° 33′. raw FD parallel to AB at the diſtance of 116, hich will meet AD in D. Let fall upon AB the rpendicular DB. Then AB will be the proper fference of latitude, and AD the direct diſtance: find which by calculation, firſt, for the diſtance D it will be (by rect. trig.) S, A : BD : : R : AD.

i. e. As the ſine of the courſe	42° 33′	9·83010
is to the departure -	116	2·06446
ſo is radius - - -		10·00000
to the direct diſtance	171·5	2·23436

Then for the proper difference of latitude, it will be (by rect. tr g.) T, A : BD : : R : AB,

i. e. As the tang. of the courſe	42° 33′	9·96281
is to the departure -	116	2·96446
ſo is radius - - -		10·00000
to the proper diff. of latitude	126·4	2·10165

equal to 2° 6′: conſequently the ſhip has come to lat. 52° 30′ N.; and ſo the meridional difference of latitude will be 212·2.

II. Produce AB to E, till AE be equal to 212·2; and through E draw EC parallel to BD, meeting AD produced in C; then EC will be the difference of longitude; to find which by calculation, it will be (by rect. trig.) R : AE : : T, A : EC.

i. e. As radius		10·00000
is to the merid. diff. of latitude	212·2	2·32675
ſo is the tang. of the courſe	42° 33′	9·96281
to the min. of diff. of longitude	194·8	2·28956

equal to 3° 14′ 48″, the difference of longitude E. This might have been found otherwiſe, thus: becauſe the triangles ACE, ADB, are ſimilar; therefore it will be AB : BD : : AE : EC.

i. e. As the proper diff. of lat.	126.4	2·10165
is to the departure -	116	2·06446
ſo is the enlarged diff. of lat.	212·2	2·32675
to min. of diff. of longitude	194·8	2·28956

163. Case VIII. Both latitudes and departure given, to find courſe, diſtance, and difference of longitude?

164. Ex. Suppoſe a ſhip from lat. 46° 20′ N. ſails between S. and W. till ſhe has made of departure 126·4 miles; and is then found by obſervation to be in latitude 43° 35′ N.: Required the courſe and diſtance ſailed, and difference of longitude?

165. Geomet. Draw AK (*Pl.* CCXLII. *No.* 20.) to repreſent the meridian of the ſhip in her firſt latitude; ſet off upon it AC, equal to 165, the proper difference of latitude. Draw BC perpendicular to AC, equal to 126·4 the departure, and join AB. Set off from A, AK equal to 233·3, the enlarged difference of latitude; and through K draw KD parallel to BC, meeting AB produced in D: ſo the caſe is conſtructed, and DK will be the difference of longitude, AB the diſtance, and the angle A the courſe; to find which,

166. By Calculation: Firſt, For DC the difference of lon. it will be, AC : CB : : AK : KD.

i. e. As the proper diff. of lat.	165	2·21748
is to the departure	126·4	2·10175
ſo is the enlarged diff. of lat.	233·3	2·36791
to min. of diff. of lon.	178·7	2·25218

equal to 2° 58′ 42″ the difference of lon. W. Then for the courſe it will be (by rect. trigon.) AC : BC : : R : T, A;

i. e. As the proper diff. of lat.	165	2·21748
is to the departure	446·1	2·10175
ſo is radius		10·00000
to the tang. of the courſe	37° 27′	9·88429

which, becauſe the ſhip ſails between S. and W. will be S. 37° 27′ W. or SW*b*S. 6° 30′ W. Laſtly, For the diſtance AB, it will be (by rect. trig.) S, A : BC : : R : AB.

i. e. As the ſine of the courſe	37° 27′	9·78395
is to the departure	126·4	2·10175
ſo is radius		10·00000
to the direct diſtance	207·9	2·31780

167. CASE IX. One latitude, diſtance ſailed, and departure given; to find the other latitude, difference of longitude, and courſe?

168. Ex. Suppoſe a ſhip in lat. 48° 33′ N. ſails between S. and W. 138 miles, and has then made of departure 112·6; Required the latitude come to, the direct courſe, and difference of longitude?

169. Geomet. 1. Draw BD (*No.* 21.) for the meridian of the ſhip at B; and parallel to it draw FE, at the diſtance of 112·6, the departure. Take 138, the diſtance, in your compaſſes, and fixing one point of them in B, with the other croſs the line FE in the point E; then join B and E, and from E let fall upon BD the perpendicular ED; ſo BD will be the proper difference of latitude, and the angle B will be the courſe; to find which, by calculation, Firſt, For the courſe it will be (by rect. trig.) BE : R : : DE : S, B;

i. e. As the diſtance	138	2·13988
is to radius		10·00000
ſo is the departure	112·6	2·05154
to the ſine of the courſe	54° 41′	9·91166

which, becauſe the ſhip ſails between S. and E. will be S. 54° 41′ E. or SE. 0° 41′ E. Then for the difference of latitude, it will be (by rect. trig.) R : BE : : Co. S, B : BD.

i. e. As radius		10·00000
is to the diſtance	138	2·13988
ſo is the coſine of the courſe	54° 41′	9·76200
to the difference of lat.	79·8	1·90188

equal to 1° 19′. Conſequently the ſhip has come to lat. 47° 13′. Hence the meridional difference of lat. will be 117·7. 2dly, Produce B to A, till BA be equal to 117·7; and through A draw AC parallel to DE, meeting BE produced in C; then AC will be the difference of longitude; to find which by calculation, it will be, BD : DE : : BA : AC.

i e. As the proper diff. of lat.	79·8	1·90180
is to the departure	2·6	2·05054
ſo is the enlarged diff. of lat.	7·7	2·07078
to the diff. of lon.	66·0	2·22044

equal to 2°46′ 06″, the difference of lon. E.

170. X. From what has been ſaid, it will be eaſy to ſolve a traverſe according to the rules of Mercator's ſailing.

171. Ex. Suppoſe a ſhip at the Lizard in lat. 50° 00′ N. is bound to the Madeira in lat. 32° 20′ N. the difference of lon. between them being 11° 40′, the W. end of the Madeira lying ſo much to the weſtward of the Lizard, and conſequently the direct courſe and diſtance (by *Caſe* 1. *of this Sect.*) is S. 261° 5′ W. 1181·9 miles; but by reaſon of the winds ſhe is forced to ſail on the following courſes (allowance being made for lee-way and variation, &c.) viz. SSW. 54 miles, S*b*W. ½ weſt 36 miles, SW*b*S. 56 miles, and S*b*E. 28 miles: Required the latitude the ſhip is in, her bearing and diſtance from the Lizard, and her direct courſe and diſtance from the Madeira, at the end of theſe courſes?— The geometrical conſtruction of this traverſe is performed by laying down the two ports according to conſtruction of *Caſe* 2. *of this Section*, and the ſeveral courſes and diſtances according to *Caſe* 3. by which we have the following ſolution by calculation. I. Courſe SSW. diſtance 54 miles. For difference of latitude,

As radius		10·0000[illegible]
is to the diſtance	44	1·64[illegible]
ſo is the coſine of the courſe	22° 30′	9·96[illegible]
to the diff. of lat.	40 65	·60[illegible]

and ſince the courſe is ſoutherly, therefore the latitude come to will be 49° 20′ N. and conſequently the meridional difference of lat. will be 61·8. Then, For difference of lon.

As radius		10·0000[illegible]
is to the enlarged diff. of lat.	61·8	1·79[illegible]
ſo is the tang. of the courſe	22° 30′	9·61[illegible]
to min. of diff. of lon.	25·6	1·40[illegible]

II. Courſe S*b*W. ½ weſt, diſtance 36 miles. For difference of lat.

As radius		10·0000[illegible]
is to the diſtance	36	1·556[illegible]
ſo is the coſine of the courſe	16° 52′	9·98[illegible]
to the difference of lat.	34·46	1·537[illegible]

and ſince the courſe is S. therefore the latitude come to will be 48° 45′ Hence the meridional difference of lat. will be 53·4. Then, for diff. of lon.

As radius		10·0000[illegible]
is to the enlarged diff. of lat.	53·4	1·72[illegible]
ſo is the tang. of the courſe	16° 52′	9·48[illegible]
to the difference of lon.	16·19	1·20[illegible]

III. Courſe SW*b*S. diſtance 56 miles. For diff. of lat.

As radius		10·0000[illegible]
is to the diſtance	56	1·74[illegible]
ſo is the coſine of the courſe	33° 45′	9·919[illegible]
to the difference of lat.	46·56	1·66[illegible]

conſequently the latitude come to is 47° 59′; and therefore the enlarged difference of latitude will be 69·2. Then, for difference of lon.

As radius		10·0000[illegible]
is to the enlarged diff. of lat.	69·2	1·84[illegible]
ſo is the tang. of the courſe	33° 45′	9·82[illegible]
to the difference of lon.	46·24	1·66[illegible]

IV. Courſe S*b*E. diſtance 28 miles. For difference of lat.

As radius		10·0000[illegible]
is to the diſtance	28	1·44[illegible]
ſo is the coſine of the courſe	11° 15′	9·991[illegible]
to the difference of lat.	27·46	1·43[illegible]

conſequently the latitude come to will be 47° 31′; and hence the meridional difference of lat. will be 43·2. Then, for difference of lon.

As radius		10·0000[illegible]
is to the enlarged diff. of lat.	43·2	1·635[illegible]
ſo is the tang. of the courſe	11° 15′	9·29[illegible]
to the diff. of lon.	8·59	0·93[illegible]

172. Now theſe ſeveral courſes and diſtances together with the difference of latitude and longitude belonging to each of them, being ſet down in their proper columns in the TRAVERSE TABLE will ſtand as follow:

Courſe

Courſes.	*Diſtances.*	*Diff. of Lat.*		*Diff. of Lon.*	
		N.	S.	E.	W.
SSW.	44		40·65		25·6
S*b*W. ½ W.	36		34·46		16·16
SW*b*S.	56		46·56		49·27
S*b*E.	28		27·46	8·59	
	Diff. of Lat.		149·13	8·59	88·03
					8·59
				Diff. of Lon.	79·44

ence it is plain, that the ſhip has made of ſouthing 49·13 minutes, and conſequently has come to lat. 7° 31′ N. and ſo the meridional difference of lat. etween that and her firſt lat. will be 226·1: and ince ſhe has made of difference of lon. 79° 44 W. herefore, for the direct courſe and diſtance beween the Lizard and the ſhip, it will be (by *Caſe* *of this Section*). For the direct courſe,

s the merid. diff. of lat.	226·1	2·35430
s to radius		10·00000
o is the diff. of lon.	79·44	1·90004
o the tang. of the courſe	19° 22′	9·54593

hich, becauſe the difference of lat. is S. and the ifference of lon. W. will be S. 19° 22′ W. or bW. 8° 7′ W. Then, for the direct diſtance.

s radius		10·00000
s to the proper diff. of lat.	149·13	2·17349
o is the ſecant of the courſe	19° 22′	10·02530
o the direct diſtance	158	2·19879
rom the latitude the ſhip is in		47° 31′ N.
btract the lat. of the Madeira		32° 20′ N.
nd there remains		15 11

qual to 911 minutes, the proper difference of t. between the ſhip and the Madeira.

gain, from the merid. parts anſwering to the lat. the ſhip is in	3248·4
ake the meridional parts anſwering to the latitude of the Madeira.	2052·0
nd there remains	1196·4

e enlarged difference of latitude between the ip and the Madeira.

lſo, from the difference of lon. between the Lizard and the Madeira,	11° 40′ W.
ake the difference of lon. between the Lizard and the ſhip,	$1^\circ\ 19'\frac{44}{100}$ W.
	$10^\circ\ 20'\frac{56}{100}$ W.

qual to 620° 56′ of difference of lon. between the ip and the Madeira W. Then for the direct ourſe and diſtance between the ſhip and the Madeira, it will be, for the direct courſe,

s the merid. diff. of lat.	1196·4	3·07788
to radius		10·00000
is the diff. of lon.	620·56	2·79278
the tang. of the courſe	27° 25′	9·71493
or the direct diſtance,		
s radius		10·00000
to the proper diff. of lat.	911	2·95952
is the ſecant of the courſe	27° 20′	10·05174
the direct diſtance	1027	3·01126

173. XI. It is very common in working a day's reckoning at ſea, to find the difference of latitude and departure to each courſe and diſtance; and adding all the departures together, and all the differences of latitudes for the whole departure, and difference of latitude made good that day, from thence (by *Caſe* 8. *of this Section*), to find the difference of longitude, &c. made good that day. Now that this method is falſe, will evidently appear, if we conſider that the ſame departure, reckoned on two different parallels, will give unequal differences of longitude; and conſequently, when ſeveral departures are compounded together and reckoned on the ſame parallel, the difference of longitude reſulting from that cannot be the ſame with the ſum of the differences of longitude reſulting from the ſeveral departures on different parallels; and therefore we have choſen, in the laſt *example* of a *traverſe*, to find the difference of longitude anſwering to each particular courſe and diſtance, the ſum of which muſt be the true difference of longitude made good by the ſhip on theſe ſeveral courſes and diſtances.

174. XII. We ſhewed, at *Art.* 3 *of this Section*, how to conſtruct a Mercator's chart; and now we ſhall proceed to its ſeveral uſes, contained in the following problems.

175. Prob. I. Let it be required to lay down a place upon the chart, its latitude, and the difference of longitude between it and ſome known place upon the chart being given.

176. Ex. Let the known place be the Lizard lying on the parallel of 50° 00′ N. and the place to be laid down St Katharine's on the E. coaſt of America, differing in longitude from the Lizard 42° 36′, lying ſo much to the weſtward of it. Let L repreſent the Lizard on the chart, (ſee *Plate* CCXLII. *No.* 12.), lying on the parallel of 50° 00′ N. its meridian. Set off AE from E upon the equator EQ 42° 36′ towards Q, which will reach from E to F. Through F draw the meridian FG, and this will be the meridian of St Katharine's; then ſet off from Q to H upon the graduated meridian QB 28 degrees; and through H draw the parallel of latitude HM, which will meet the former meridian in K, the place upon the chart required.

177. Prob. II. Given two places upon the chart, to find their difference of latitude and difference of longitude? Through the two places draw parallels of latitude; then the diſtance between theſe parallels, numbered in degrees and minutes upon the graduated meridian, will be the difference of latitude required; and through the two places drawing meridians, the diſtance between theſe, counted in degrees and minutes on the equator or any graduated parallel, will be the difference of longitude required.

178. Prob. III. To find the bearing of one place from another upon the chart?

179. Ex. Required the bearing of St Katharine's at K (ſee *No.* 12.) from the Lizard at L? Draw the meridian of the Lizard AE, and join K and L with the right line KL: then by the line of chords meaſuring the angle KLE, and with that entering the tables, we ſhall have the thing required. This may alſo be done, by having compaſſes drawn on the chart (ſuppoſe at two of its

corners); then lay the edge of a ruler over the two places, and let fall a perpendicular, or take the neareſt diſtance from the centre of the compaſs next the firſt place, to the ruler's edge; then with this diſtance in your compaſſes, ſlide them along by the ruler's edge, keeping one foot of them cloſe to the ruler, and the other as near as you can judge perpendicular to it, which will deſcribe the rhumb required.

180. Prob. IV. To find the diſtance between two given places upon the chart? This problem admits of four caſes, according to the ſituation of the two places with reſpect to one another.

181. Case I. When the given places lie both upon the equator. In this caſe their diſtance is found by converting the degrees of difference of longitude intercepted between them into minutes.

182. Case II. When the two places lie both on the ſame meridian. Draw the parallels of thoſe places; and the degrees upon the graduated meridian intercepted between thoſe parallels, reduced to minutes, give the diſtance required.

183. Case III. When the two places lie on the ſame parallel.

184. Ex. Required to find the diſtance between the points K and N, (ſee No. 12.), both lying on the parallel of 28° 00′ N. Take from your ſcale the chord of 60° or radius in your compaſſes, and with that extent on KN as a baſe make the iſoſceles triangle KPN; then take from the line of ſines the co-ſine of the latitude, or ſine of 72°, and ſet that off from P to S and T. Join S and T with the right line ST, and that applied to the graduated equator will give the degrees and minutes upon it equal to the diſtance required. The reaſon of this is evident from the ſection of *Parallel Sailing:* where it is demonſtrated, that radius is to the co-ſine of any parallel, as the length of any arch on the equator, to the length of the ſame arch on that parallel. Now in this chart KN is the diſtance of the meridians of the two places K and N upon the equator; and ſince, in the triangle PNK, ST is the parallel to KN, therefore PN : PT : : NK : TS. Conſequently TS will be the diſtance of the two places K and N upon the parallel of 28°. If the parallel the two places lie on be not far from the equator, and they not far aſunder; then their diſtance may be found thus: Take the diſtance between them in your compaſſes, and apply that to the graduated meridian, ſo as the one foot may be as many minutes above, as the other is below the given parallel; and the degrees and minutes intercepted, reduced to minutes, will give the diſtance. Or it may alſo be found thus: Take the length of a degree on the meridian at the given parallel, and turn that over on the parallel from the one place to the other as oft as you can; then as oft as that extent is contained between the places, ſo many times 60 miles will be contained in the diſtance between them.

185. Case IV. When the places differ both in longitude and latitude.

186. Ex. Suppoſe it were required to find the diſtance between the two places *a* and *e* upon the chart. By

187. Prob. II. Find the difference of latitude between them; and take that in your compaſſes from the graduated equator, which ſet off on the meridian of *a*, from *a* to *b;* then through *b* draw *b c* parallel to *d e;* and taking *a c* in your compaſſes, apply it to the graduated equator, and it will ſhew the degrees and minutes contained in the diſtance required, which multiplied by 60 will give the miles of diſtance. The reaſon of this is evident from *Art.* 6. *of this Section:* for it is plain *a d* is the enlarged difference of latitude, and *a b* the proper; conſequently *a e* the enlarged diſtance, and *a c* the proper.

188. Prob. V. To lay down a place upon the chart, its latitude and bearing from ſome known place upon the chart being known, or (which is the ſame) having the courſe and difference of latitude that a ſhip has made, to lay down the running of the ſhip, and find her place upon the chart.

189. Ex. A ſhip from the Lizard in the latitude of 50° 00′ N. ſails SSW till ſhe has differed her lat. 36° 40′: Required her place upon the chart? Count from the Lizard at L, on the graduated meridian downwards (becauſe the courſe is ſoutherly) 36° 40′ to *g;* through which draw a parallel of latitude, which will be the parallel the ſhip is in; then from L draw a SSW line L*f*, cutting the former parallel in *f*, and this will be the ſhip's place upon the chart.

190. Prob. VI. One latitude, courſe, and diſtance ſailed, given; to lay down the running of the ſhip, and find her place upon the chart.

191. Ex. Suppoſe a ſhip at *a* in lat. 20° 00′ N. ſails N. 37° 20′, E. 191 miles: Required the ſhip's place upon the chart? Having drawn the meridian and parallel of the place *a*, ſet off the rhumb line *a c*, making with *a b* an angle of 37° 20′; and upon it ſet off 191 from *a* to *c;* through *c* draw the parallel *c b;* and taking *a b* in your compaſſes, apply it to the graduated equator, and obſerve the number of degrees it contains; then count the ſame number of degrees on the graduated meridian from C to *b*, and through *b*, draw the parallel *b e*, which will cut *a c* produced in the point *e*, the ſhip's place required.

192. Prob. VII. Both latitudes and diſtance ſailed, given; to find the ſhip's place upon the chart?

193. Ex. Suppoſe a ſhip ſails from *a*, in lat. 20° 00′ N. between N. and E. 191 miles, and is then in lat. 45° 00′ N: Required the ſhip's place upon the chart? Draw *d e* the parallel of 45°; and ſet off upon the meridian of *a* upwards, *a b* equal to the proper difference of latitude taken from the equator or graduated parallel. Through *b* draw *b c* parallel to *d e;* then with 191 in your compaſſes, fixing one foot of them in *a*, with the other croſs *b e* in *c*. Join *a* in *c* with the right line *a c;* which produced will meet *d e* in *e*, the ſhip's place required.

194. Prob. VIII. One latitude, courſe and difference of longitude, given; to find the ſhip's place upon the chart?

195. Ex. Suppoſe a ſhip from the Lizard in lat. 50° 00′ N. ſails SW*b*W, till her difference of longitude is 42° 36′: Required the ſhip's place upon the chart? Having drawn AE the meridian of the Lizard at L, count from E to F upon the equator 42° 36′; and through F draw the meri-

dian EG; then from L draw the SW*b*W line LK, and where this meets FG, as at K, will be the ſhip's place required.

196. Prob. IX. One latitude, courſe, and departure, given; to find the ſhip's place upon the chart?

197. Ex. Suppoſe a ſhip at *a* in the latitude of 20° 00′ N. ſails N. 37° 20′ E. till ſhe has made of departure 116 miles: Required the ſhip's place upon the chart? Having drawn the meridian of *a*, at the diſtance of 116, draw parallel to it the meridian *k l*. Draw the rhumb line *a c*, which will meet *k l* in ſome point *e*; then through *c* draw the parallel *c b*, and *a b* will be the proper difference of latitude, and *b c* the departure. Take *a b* in your compaſſes, and apply it to the equator or graduated parallel; then obſerve the number of degrees it contains, and count ſo many on the graduated meridian from C upwards to *h*. Through *b* draw the parallel *h e*, which will meet *a c* produced in ſome point as *e*, which is the ſhip's place upon the chart.

198. Prob. X. One latitude, diſtance, and departure, given; to find the ſhip's place upon the chart?

199. Ex. Suppoſe a ſhip at *a* in lat. 20° 00′ N. ſails 191 miles between N. and S. and then is found to have made of departure 116 miles: Required the ſhip's place upon the chart? Having drawn the meridian and parallel of the place *a*, ſet off upon the parallel *a m* equal to 116, and through *m* draw the meridian *k l*. Take the given diſtance 191 in your compaſſes; ſetting one foot of them in *a*, with the other croſs *k l* in *c*. Join *a c*, and through *c* draw the parallel *c b*; ſo *c b* will be the departure, and *a b* the proper difference of latitude; then proceding with this, as in the foregoing problem, you will find the ſhip's place to be *e*.

200. Prob. XI. The latitude ſailed from, difference of latitude, and departure, given; to find the ſhip's place upon the chart?

201. Ex. Suppoſe a ſhip from *a* in the latitude of 20° 00′ N. ſails between N. and E. till ſhe be in lat. 45° 00′ N. and is then found to have made of departure 116 miles: Required the ſhip's place upon the chart? Having drawn the meridian of *a* ſet off upon it, from *a* to *b*, 25 degrees, (taken from the equator or graduated parallel) the proper difference of latitude; then through *b* draw the parallel *b c*, and make *b c* equal to 116 the departure, and join *a c*. Count from the parallel of *a* on the graduated meridian upwards to *h* 25° and through *b* draw the parallel *h e*, which will meet *a c* produced in ſome point *e*, and this will be the place of the ſhip required.

202. XII. In the ſection of *Plane Sailing*, it is plain, that the terms *meridional diſtance*, *departure*, and *difference of longitude*, were ſynonimous, conſtantly ſignifying the ſame thing; which evidently followed from the ſuppoſition of the earth's ſurface being projected on a plane in which the meridians were made parallel, and the degrees of latitude equal to one another and to thoſe of the equator. But ſince it has been demonſtrated (in this ſection) that if, in the projection of the earth's ſurface upon a plane, the meridians be made parallel, the degrees of latitude muſt be unequal, ſtill increaſing the nearer they come to the pole; it follows, that theſe terms muſt denote lines really different from one another.

Sect. V. *Of* Oblique Sailing.

203. The queſtions that may be propoſed on this head being innumerable, we ſhall only give a few of the moſt uſeful.

204. Prob. I. Coaſting along the ſhore, I ſaw a cape bear from me NNE; then I ſtood away NW*b*W 20 miles, and I obſerved the ſame cape to bear from me NE*b*E: Required the diſtance of the ſhip from the cape at each ſtation?

205. Geomet. Draw the circle NWSE (*pl.* CCXLIII. N° 22.) to repreſent the compaſs, NS the meridian, and WE. the eaſt and weſt line, and let C be the place of the ſhip in her firſt ſtation; then from C ſet off upon the NW*b*W line, CA 20 miles, and A will be the place of the ſhip in her ſecond ſtation. From C draw the NNE line CB, and from A draw AB parallel to the NE*b*E line CD, which will meet CB in B the place of the cape, and CB will be the diſtance of it from the ſhip in its firſt ſtation, and AB the diſtance in the ſecond: to find which,

206. By Calculation; In the triangle ABC are given AC, equal to 20 miles; the angle ACB, equal to 78° 45′, the diſtance between the NNE and NW*b*W lines; alſo the angle ABC, equal to BCD, equal to 33° 45′, the diſtance between the NNE and NE*b*E lines; and conſequently the angle A, equal to 67° 30′. Hence for CB, the diſtance of the cape from the ſhip in her firſt ſtation, it will be (by oblique trigonometry,) S. ABC : AC : : S. BAC : CB;

i. e. As the ſine of the angle B	33° 45′	9·74473
is to diſtance run AC	20 —	1·30103
ſo is the ſine of BAC	67 , 30	9·96562
to BC	33·26	1·52191

the diſtance of the cape from the ſhip at the firſt ſtation. Then for AB, it will be, by oblique trigonometry, S. ABC : AC : : ACB : AB;

i. e. as the ſine of B	33° 45′	9·74474
is to AC	20 —	1·30103
ſo is the ſine of C	78, 45	9·99197
to AB	35·31	1·54786

the diſtance of the ſhip from the cape at her ſecond ſtation.

207. Prob. II. Coaſting along the ſhore, I ſaw two headlands; the firſt bore from me NE*b*E 17 miles, the other SSW 20 miles: Required the bearing and diſtance of theſe headlands from one another?

208. *Geom.* Having drawn the compaſs NWSE (N° 23.) let C repreſent the place of the ſhip; ſet off upon the NE*b*E line CA 17 miles from C to A, and upon the SSW line CB 20 miles from C to B, and join AB: then A will be the firſt headland, and B the ſecond; alſo AB will be their diſtance, and the angle A will be the bearing from the NE*b*N line: to find which,

209. By Calculation; In the triangle ACB are given AC 17, CB 20, and the angle ACB equal to 101° 15′, the diſtance between the NE*b*E and SSW lines. Hence (by oblique angular trigonometry) it will be

As the ſum of the ſides AC and CB	37°	1·56820
is to their difference	3°	0·47712

ſo-

ſo is the tang. of ½ the ſum of the angles A and B	39°, 22½	9·91471
to the tang. of half their diff.	3 , 49	8·82309

conſequently the angle A will be 43° 11′, and the angle B 45° 34′; alſo the bearing of B from A will be S*b*W 1° 49′ weſterly, and the bearing of A from B will be N*b*E 1° 49′ eaſterly. Then for the diſtance AB, it will be, (by oblique angular trigonometry) S. A : CB : : S. C : AB.

i. e. As the ſine of A	43°, 11′	9·83527
is to CB	20	1·30103
ſo is the ſine of C	101, 15	9·99157
to AB	28·67	1·45733

the diſtance between the two headlands.

210. Prob. III. Coaſting along the ſhore, I ſaw two headlands; the firſt bore from me NW*b*N, and the ſecond NNE; then ſtanding away E*b*N. ½ N. 20 miles, I found the firſt bore from me WNW. ½ weſterly, and the ſecond N*b*W. ½ weſterly: Required the bearing and diſtance of theſe two headlands?

211. *Geom.* Having drawn the compaſs NWSE (N° 24.) let C repreſent the firſt place of the ſhip; from which draw the NW*b*N line CB, and the NNE line CD, alſo the E*b*N ½ N line CA, which make equal to 20. From A draw AB parallel to the WNW ½ W line, and AD parallel to the N*b*W ½ W. meeting the two firſt lines in the points B and D; then B will be the firſt and D the ſecond headlands. Join the points B and D, and BD will be the diſtance between them, and the angle CDB the bearing from the NNE line: to find which,

212. By Calculation; I. In the triangle ABC are given the angle BCA, equal to 104° 04′, the diſtance between the NW*b*N line, and the ENE ½ E line; the angle BAC, equal to 36° 34′, the diſtance between the WSW ½ W line and the WNW ½ W line; the angle ABC equal to 39° 22′, the diſtance between the ESE ½ E line; and the SW*b*S line, alſo the ſide CA equal to 20 miles: whence for CB, it will be by oblique trigonometry)

As the ſine of CBA	39°, 22′	9·80228
Is to AC	20	1·30103
ſo is the ſine of CAB	36 , 34	9·77507
to CB	18·79	1·27382

the diſtance between the firſt headland and the ſhip in her firſt ſtation.

213. II. In the triangle ACD, are given the angle ACD, equal to 47° 49′, the diſtance between the ENE ½ E line and the NNE line; the angle CAD, equal to 92° 49′, the diſtance between the WSW ½ W line; and the N*b*W ½ line, the angle CDA equal to 39° 12′, the diſtance between the SSW line and the S*b*E ½ E line; alſo the leg CA equal to 20. Hence for CD, it will be, (by oblique trigonometry)

As the ſine CAD	39°, 22′	9·80228
is to AC	20	1·30103
ſo is the ſine of CAD	92 , 34	9·99060
to CD	31·5	1·49835

the diſtance between the ſecond headland and the ſhip in her firſt ſtation.

214. III. In the triangle BCD are given BC 18·79, CD 31·5, and the angle BCD equal to 55° 15′, the diſtance between the NW*b*N line and the NNE line. Hence for the angle CDB, it will be (by oblique trigonometry)

As the ſum of the ſides	50·29	1·70148
is to the difference of ſides	12·71	1·10415
ſo is tangent of ½ ſum of the unknown angles	61°, 51′	10·27189
to tang. of half their diff.	25 , 18	0·67458

conſequently the angle CBD is 87° 10′, and the angle CDB 36° 35′. Hence the bearing of the firſt headland from the ſecond will be S 59° 8′, W or SW*b*W ½ W nearly; and for the diſtance between them, it will be,

As the ſine of BDC	36°, 35′	9·77514
is to BC	18·79	1·27382
ſo is the ſine of BCD	56°, 15′	9·91985
to BD	26·21	1·41843

the diſtance between the two headlands. This and the firſt problem are of great uſe in drawing the plot of any harbour, or laying down any ſea-coaſt.

215. Suppoſe a ſhip that makes her way good within 6½ points of the wind, at north, is bound to a port bearing eaſt 86 miles diſtance from her: Required the courſe and diſtance upon each tack, to gain the intended port?

216. *Geomet.* Having drawn the compaſs NE. SW. (N° 25.), let C repreſent the ſhip's place, and ſet off upon eaſt line CA 86 miles, ſo A will be the intended port. Draw CD and CB on each ſide of the north line at 6½ points diſtance from it, and through A draw AB parallel to CD meeting CB in B; then the ENE ½ E line CB, will be the courſe of the ſhip upon the ſtarboard tack, and CB its diſtance on that tack; alſo the ESE ½ E line AB, will be the courſe on the larboard tack and BA the diſtance on that tack: to find which,

217. By Calculation: In the triangle ABC are given the angle ACB, equal to 16° 53′, the diſtance between the ENE ½ E line; the angle CBA, equal to 146° 14′, the diſtance between the ENE ½ E and the WNW ½ W lines; the angle BAC equal to 168° 53′ the diſtance between the E. and ESE ½ E lines; alſo AC 86 miles. Hence, ſince the angle at A and C are equal, the legs CB and BA will likewiſe be equal; to find either of which (ſuppoſe CB) it will be (by oblique angular trigonometry),

As the ſine of B	146°, 14′	9·744
is to AC	86	1·934
ſo is the ſine of A	16·53	9·463
to CB	44·94	1·652

the diſtance the ſhip muſt ſail on each tack. There is a great variety of uſeful queſtions of this nature that may be propoſed; but the nature of these being better underſtood by practice at ſea, we ſhall leave them, and proceed to

Sect. VI. Great Circle Sailing.

218. Many caſes might be propoſed in this kind of ſailing; but as they ſerve rather for exerciſes in the ſolution of ſpheric triangles than for any real uſe towards the navigating of a ſhip, we ſhall only give the ſolution of one problem, as being moſt generally uſeful.

219. Prob. Given the latitudes and longitudes of two places on the earth: Required the neareſt diſtance on the ſurface, together with the angles of poſition (or that which a great circle paſſing

over

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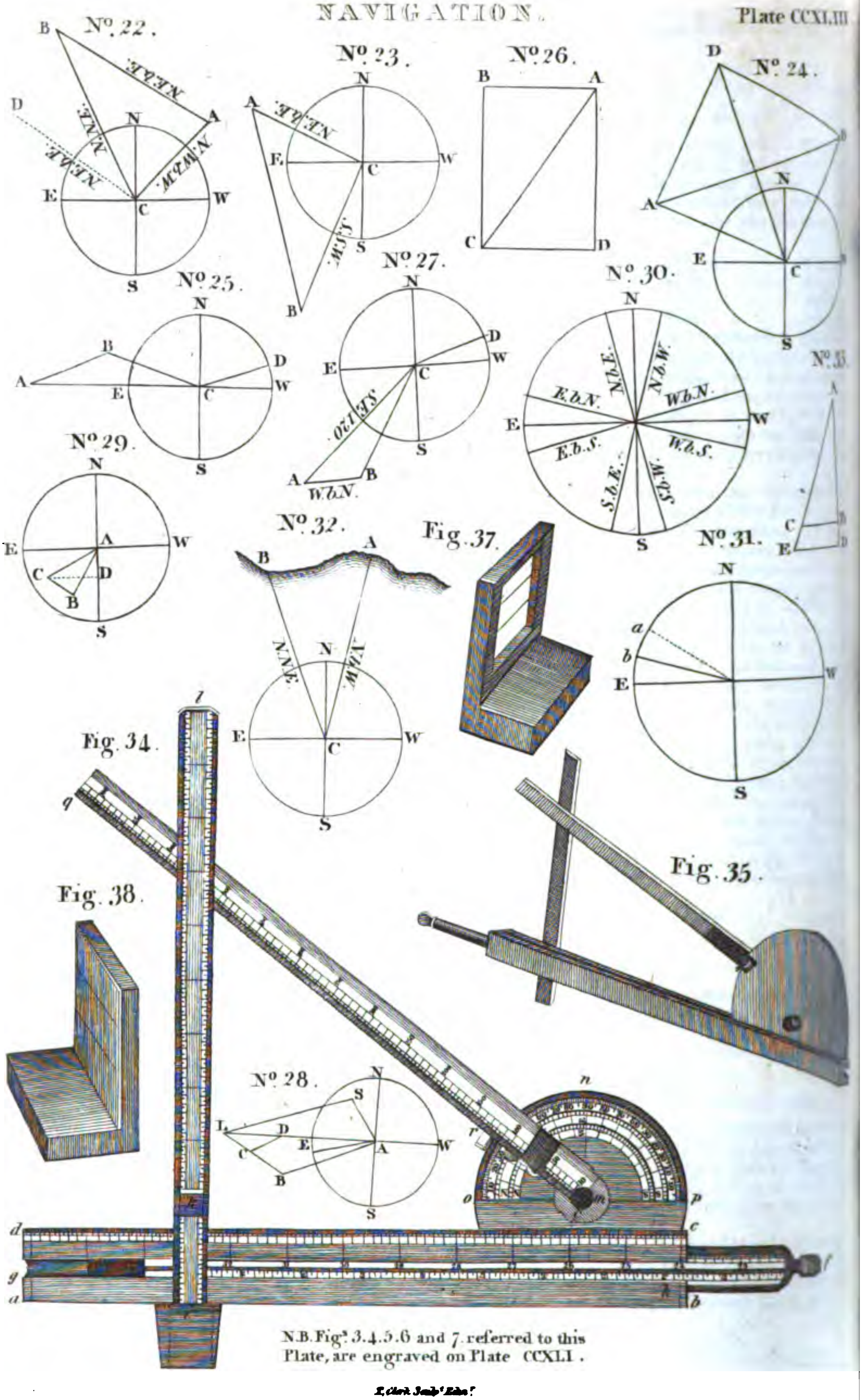


N.B. Figs. 3.4.5.6 and 7. referred to this Plate, are engraved on Plate CCXLI.

I. Clark Sculpt Edinr

wer both places, makes with the meridian of one f them) from either place to the other?

220. Caſe I. When both places lie under the ame meridian, their difference of latitude ſhews heir neareſt diſtance.

221. Caſe II. When the two places lie under he equator, their diſtance is equal to the difference of longitude between them.

222. Caſe III. When the two places lie under he ſame parallel of latitude.

223. Ex. What is the leaſt diſtance between St Mary's in lat. 37° 09′ N. lon. 25° 0′ W. and Cape Henry, in lat. 37° 00′ lon. 76° 23′ W.?

224. Deſcribe a circle PESQ *Pl.* CCXLIII. *fig.* . repreſenting the meridian of one of the places; uppoſe of the eaſtern one, as St Mary's; draw he line EQ repreſenting the equator, and at right ngles to it draw the line PS, for the axis of the arth, the extremity of which, P is the north pole, nd S the ſouth pole; and on this circle lay off from to A the complement of the latitude of St Mary's, he eaſtern place. On the equator, from Q to C, lay ff the difference of longitude between the two places: and through the points P, C, S, deſcribe a cirle, which will be the meridian of the other place, ape Henry; on which lay from P to B the co-latitude of this place, which is done by deſcribing he arc A*a* about the pole P, according to the rules f projection, at the diſtance of the co-latitude. hrough the points ABD deſcribe a great circle; hen will A repreſent St Mary's, and B Cape Heny; PA and PB are their co-latitudes; the angle PB, which is meaſured by the arc QC, is the ifference of longitude; the arc AB is the neareſt iſtance from theſe places; the angle PAB is the ngle of poſition from A to B; and the angle PBA the angle of poſition from B to A. The arc AB, nd the angle PAB and PBA, may be meaſured ccording to the rules laid down under the article rojection. Now, the places having the ſame titude, PA is equal to PB, and the angles PAB nd PBA are likewiſe equal. Therefore if the arc I be deſcribed, making the angle API=25° 41½′, e half of the difference of longitude; PI will be erpendicular to AB, and biſect it. And in the iangle AIP, right-angled at I, there will be gien the hypothenuſe AP=53° 00′ the angle API =25° 41′; to find the leg AI = half the diſtance ought, and the angle PAI = the angle of poſion. Then, for the diſtance: As radius is to the ne of the hypothenuſe PA, ſo is the ſine of the iven angle API to the ſine of the leg AI; or,

s radius = 90° 00′ 10·00000
o coſ. lat. = 37 00 9·90235
o is ſine ½ diff. lon. = 25 41½ 9·63702
o ſine ½ diſt. = 20 75½ 9·53937

hich doubled, gives 40° 31′ for the diſtance; and his diſtance, reduced to nautical miles, is 2431; ſs by 31 than that given by parallel ſailing.—For he angle of poſition, as radius is to the co-ſine of he hypothenuſe PA, ſo is the tangent of the gien angle API to the co-tangent of the angle A. r,

s radius = 90° 00′ 10·00000
o ſine lat. = 37 00 9·77946
o is tang. ½ dif, lon. = 25 41½ 9·68222
o co-tang. ang. poſit. = 73 51 9·46168

Hence it appears, that to ſail from A to B, or from B to A, the ſhip muſt firſt ſteer N. 73° 51′ W. or E. and then gradually increaſe her courſe till ſhe comes to I, where it will be due W. or E; and from thence the courſe is to be gradually diminiſhed again till ſhe comes to the other port, where it will be 73° 51′, the ſame as ſhe ſet out with.

225. Caſe IV. When one place has latitude, and the other has none.

226. Ex. What is the neareſt diſtance between the iſland of St Thomas, in lat. 0° 00′, and lon. 1°? The co-latitude of St Julian is 41° 09′; and the difference of longitude between the two places is 66° 10′.—Let the point A (*Plate* CCXLIII, *fig.* 4.) be St Thomas, and P and S the north and ſouth poles. Make AC, the meaſure of the angle ASC, equal to 66° 10′ the difference of longitude: Then, as Port St Julian is in S. lat. about S the ſouth pole at the diſtance of St Julian's co-latitude, deſcribe the arc *aa*, cutting SCP, the meridian of St Julian in B, through the points A, B, E, a great circle being deſcribed, the arc AB is the diſtance ſought. The diſtances and angles may now be meaſured according to the rules of projection, or it falls under a caſe in ſpheric trigonometry: for, in the quadrantal triangle ASB, there are given the co-latitude of St Thomas or AS=90° 00′; the co-latitude of St Julian, or SB=41° 09′; the difference of longitude, or the angle ASB=66° 10′, whence all the reſt may be found. Or, in the ſupplemental triangle ACB, right-angled at C, there is given the latitude of St Julian's, or the leg CB =48° 51′; the difference of longitude, or the leg CA=66° 10′, whence the reſt may eaſily be found; and hence it will appear, that a ſhip ſailing from the iſland of St Thomas muſt firſt ſhape her courſe ſouth 51° 22′ W.; and then, by conſtantly altering her courſe towards the weſt, ſo as to arrive at Port St Julian on a courſe S. 71° 36′ W. ſhe will have ſailed the ſhorteſt diſtance between theſe places.

227. Caſe V. When the latitudes of the given places are both north, or both ſouth.

228. Ex. What is the neareſt diſtance between the Lizard and the iſland of Bermudas, and alſo the angles of poſition?—The difference of longitude of the two places is 58° 11′. Make PA (*Pl.* CCXLIII, *fig.* 5.) =57° 25′, the co-latitude of Bermudas; P*a*=40° 03′, the co-latitude of the Lizard; and with the tangent of P*a* deſcribe the arc *aa*. With the ſecant of 58° 11′, the difference of longitude, deſcribe arcs from P and S, which give the centre of the circle PCS, the meridian of the Lizard; its interſection with *aa* gives B, the place of the Lizard. The arcs of the circle and angles may be meaſured by ſpheric trigonometry as before. Had the eaſtern place, the Lizard, been put upon the primitive circle, the great circle AB would have been difficult to deſcribe; and therefore the weſtern place was put upon it, it being a matter of indifference which of the places are ſo taken.

229. Caſe VI. When one of the given places has north latitude, and the other has ſouth latitude.

230. Ex. What is the neareſt diſtance from the iſland of St Helena to the iſland of Bermudas, and

alſo the angles of poſition at each place; the difference of longitude between the two being 57° 43′? Make QA (*fig.* 6.) = 15° 55′, the latitude of St Helena; deſcribe the arc *aa* about P; with the tangent of *Pa*=67° 25′, the co-latitude of Bermudas. Arcs deſcribed from P, S, with the ſecant of 57° 43′, the difference of longitude, will give the centre of the circle PCS, the meridian of Bermudas; and its interſection B with *aa* is the place of Bermudas. Deſcribe a great circle through A, B, D; the intercepted arc AB is the diſtance ſought; and the angles PAB, ABS, are the poſitions required, which muſt be meaſured according to the rules of ſpheric trigonometry. From the ſolutions of theſe triangles it will appear, that when a ſhip ſails from St Helena to Bermudas on the arc of a great circle, ſhe muſt firſt ſhape her courſe N. 48° 00′ W. and gradually alter it from the N. towards the W. ſo as to arrive at Bermudas on a courſe N. 50° 01′ W. after having run 73° 26′, or 446 miles. The courſe found by Mercator's ſailing is N. 41° 45′ W. and the diſtance is 4114 miles.—By this it appears, that when the places are, one in N. latitude, and the other in S. latitude, neither of them being very far from the equator, there is but a ſmall difference between the reſults found by Mercator's and great circle ſailing: for, near the equator, the rhumb lines do not differ much from great circles. From the ſolution of the foregoing caſes, it is plain, that to ſail on the arc of a great circle, the ſhip muſt continually alter her courſe. But as this is a difficulty too great to be admitted into the practice of navigation, it has been thought ſufficiently exact to effect this buſineſs by a kind of approximation, founded upon this principle, that, in ſmall arcs, the difference between the arc and its tangent is ſo little, that they may be taken one for the other in any nautical operations. Upon this principle, the great circles of the earth are ſuppoſed to be made of ſhort right lines, each of which is a ſegment of a rhumb-line. And on this ſuppoſition the ſolution of the following problem is founded.

231. Having given the latitudes and longitudes of the places ſailed from and bound to; to find the ſucceſſive latitudes on the arc of a great circle in thoſe places where the alteration in longitude ſhall be a given quantity; together with the courſes and diſtances between thoſe places. 1. Find the angle of poſition at each place, and their diſtance by one of the preceding ſix caſes. 2. Find the greateſt latitude the great circle runs through; that is, find the perpendicular from the pole to that circle; and alſo find the ſeveral angles at the pole, made by the given alterations of longitude between this perpendicular and the ſucceſſive meridians come to. 3. With this perpendicular, and the polar angles ſeverally find as many correſponding latitudes, by ſaying:

As rad. tan. greateſt lat. :: coſ. 1 polar an. : tan. 1 lat.
:: coſ. 2 polar an. : tan. 2 lat.
&c. &c.

4. Having the ſeveral latitudes paſſed through, and the difference of longitude between each, find, by Mercator's ſailing, the courſes and diſtances between thoſe latitudes. And theſe are the ſeveral courſes and diſtances the ſhip muſt run to keep nearly on the arc of a great circle. The ſmaller the alterations in longitude are taken, the nearer will this method approach the truth; but it is ſufficient to compute to every five degrees of difference of longitude, the length of an arc of five degrees differing from its chord or tangent only by 0·0002.

232. Ex. A ſhip being bound from a place in lat 37° 00′ N. lon. 22° 56′ W. to a place in the ſame lat. and in lon. 76° 23′ W. it is propoſed ſhe ſhall ſail as near the arc of a great circle as ſhe can, by altering her courſe at every five degrees difference of longitude: Required the latitude at each time of altering the courſe, and alſo the courſes and diſtances between thoſe ſeven latitudes?

The figure being deſcribed, and the computation made, the diſtance BA (*Pl.* CCXLIV, *fig.* 7.) is found to be 42° 06′, and the angle A or the angle B= 73° 09′, the angle of poſition. Now the triangle APB, being iſoſceles, the perpendicular PI falls in the middle of AB; and the latitudes, courſes, and diſtances, being known in running the half Bi, thoſe in the half IA will alſo be known. Let the points *a*, *b*, *c*, *d*, &c. be the places arrived at on each alteration of five degrees of longitude; then will the arcs P*a*, P*b*, P*c*, P*d*, &c. be the reſpective co-latitudes of thoſe places, and are the hypothenuſes of the right-angled ſpheric triangles PI*a*, PI*b*, PI*c*, PI*d*, &c.

Place ſailed from lat. 37°	N. lon.	22° 56′	W.
Place bound to lat. 37	N. lon.	72 23	W.
The diff. of lon.		53° 27′	

In the triangle PIB.
Given PB = 53° 00′
the angle PBI = 73 09
To find PI.

As radius	=	90° 00′	10·00000
To ſin. PB	=	53 00	9·90235
To ſin. the ang. B	=	73 09	9·98094
To ſin. PI	=	49 51	9·88329

Now the angle IPB = $\left(\frac{53^\circ \cdot 27'}{2}\right)$ 26° 43½′; the angle IP*a*=21° 43½′; the angle IP*b*=16° 43½′; the angle IP*c*=11° 43½′; the angle IP*d*=6° 43½′, are the ſeveral polar angles.

		21° 43½′	16° 43½′	11° 43½′	6° 43½′
Then radius	= 90° 00′	10·00000	10·00000	10·00000	10·00000
To cotang. PI	= 49 51	9·92612	9·92612	9·92612	9·92612
So coſine polar angle		9·96800	9·98123	9·99084	9·99700
To tang. lat.		9·89412	9·90735	9·91696	9·92312
Which are		38° 05′	38° 56′	39° 33′	39° 57′

The degrees and min. ſet over each column, are the polar angles uſed in that proportion, and the orreſponding latitudes ſtand at bottom. The irſt term of theſe proportions being radius, and he ſecond term *conſtant*, the operations may be ery expeditiouſly performed thus: On a ſlip of aper let the log. of the ſecond or conſtant term e written of the ſame ſize with the printed figures; pply this log. co-tang. ſucceſſively to the log. co-ines of the polar angles: then the ſum of the two ogs being written down each time, will give the og. tangents of the ſeveral latitudes arrived at. y this method, each proportion will be worked y writing down only one line. Hence, it appears, the ſhip muſt firſt ſail from the lat. 37° 00′ N. to lat. 38° 05′ N.; thence to lat. 38° 56′ N.; thence to lat. 39° 23′; thence to lat. 39° 57′ N.; thence to lat. 40° 09′ N. which is the greateſt latitude ſhe muſt go to; and from thence ſhe muſt proceed through the latitudes 39° 57′, 39° 33′, 38° 56′, 38° 05′, and ſo to 37° 00′, the parallel ſhe ſet out from, and in which ſhe is to find the place ſhe is bound to. Now, between theſe ſeveral latitudes, with the reſpective differences of longitude, find by Mercator's ſailing the courſes and diſtances.

233. If the reſults of the ſeveral operations, in the queſtions of great circle ſailing be entered in ſuch a table as the following, it will be found of ſome convenience to the operator.

Polar angles.	Succeſſ. longs.	Succeſſ. lats.	Diſt. long.	Diſt. lat.	Merid. parts.	Merid. diff. lat.	Courſe.	Diſt.
The angle IPB 26° 43½′	22° 56′	37° 00′			2392·6			
IP*a* 21 43½	27 56	38 05	300	65	2474·6	82·0	74·43	246·6
IB*b* 16 43½	32 56	38 56	300	51	2539·8	65·2	77·44	240·0
IP*c* 16 43¼	37 56	39 33	300	37	2587·6	47·8	80·57	235·2
IP*d* 6 43¼	42 56	39 57	300	24	2618·8	31·2	84·04	232·2
	49 39½	40 09	403·5	12	2634·5	15·7	87·46	307·9
								1261·9

the firſt column are the angles at the pole con- ined between the perpendicular and the ſeveral eridians differing by 5° of longitude. In the 2d lumn, the departed longitude 22° 56′, being in- eaſed by the differences of longitude, makes the cceſſive longitudes come to. In the 3d column e the ſucceſſive latitudes paſſed through in ſailing om the place ſet out from to the greateſt latitude. the 4th and 5th columns are the differences be- een the longitudes and latitudes in the ſecond d third columns. In the 6th column are the eridional parts to the ſucceſſive latitudes; and in e 7th are the meridional difference of latitudes. he 8th and 9th columns contain the courſes and ſtances between the places anſwering to the 2d d 3d columns. The numbers in the 3d, 8th, d 9th columns, are found by working the loga- hmic proportions on a waſte paper; but the ork is here omitted, as it is ſo eaſily ſupplied. ow the column of diſtances being ſummed up ounts to 1261·9; which being doubled, gives 23·8 miles for the diſtance between the two aces. And the courſes the ſhip muſt ſteer are, , N. 74. 43. W.; 2d, N. 77. 44. W; 3d, N. 80. . W.; 4th, N. 84. 04. W.; 5th, N. 87. 46. W.; h, S. 87. 46. W.; 7th, S. 84. 04. W.; 8th, S. . 57. W.; 9th, S. 77. 44. W.; 10th, S. 74. 43. .; and on theſe courſes ſhe muſt run the pective diſtances ſtanding againſt them.

234. Having thus ſhown the method of ſolving the ferent caſes of navigation mathematically, and ſuppoſing the courſe of the ſhip and diſtance run to be always exactly known, we ſhall proceed to give an account of thoſe mechanical methods by which the ſhip's courſe is obſerved, and the frequent variations and errors in it corrected at convenient times.

Sect. VII. *Of the* Log-line *and* Compass.

235. I. The method commonly uſed for meaſuring a ſhip's way at ſea, or how far ſhe runs in a given ſpace of time, is by the log-line and half-minute glaſs. See Log, § 3, 4; and *Plate* CCIII.

236. II. The log, fig. 1. is generally about a quarter of an inch thick, and five or ſix inches from the angular point *a* to the circumference. It is balanced by a thin plate of lead, nailed upon the arch, ſo as to ſwim perpendicularly in the water, with about $\frac{2}{3}$ impreſſed under the ſurface. The line is faſtened to the log by means of two legs *a* and *b*, *fig.* 2. one of which paſſes through a hole *a* at the corner, and is knotted on the oppoſite ſide; while the other leg is attached to the arch by a pin *b* fixed in another hole, ſo as to draw out occaſionally. By theſe legs the log is hung *in equilibrio*, and the line, which is united to it, is divided into certain ſpaces, which are in proportion to an equal number of geographical miles, as a half minute or quarter minute is to an hour of time.

237. III. Theſe ſpaces are called *knots*, becauſe at the end of each of them there is a piece of twine with knots in it, inreeved between the ſtrands of the line, which ſhews how many of theſe ſpaces

or knots are run out during the half minute. They commonly begin to be counted at the diſtance of about 10 fathoms or 60 feet from the log, that ſo the log when it is hove overboard, may be out of the eddy of the ſhip's wake before they begin to count; and for the more ready diſcovery of this point of commencement, there is commonly faſtened at it a piece of red rag.

238. IV. The log being thus prepared, and hove overboard from the poop, and the line veered out (by the help of a reel (*fig.* 3.) that turns eaſily, and about which it is wound), as faſt as the log will carry it away, or rather as the ſhip ſails from it, will ſhew, according to the time of veering, how far the ſhip has run in a given time, and conſequently her rate of ſailing.

239. V. A degree of a meridian, according to the exacteſt meaſures, contains about 69·545 Engliſh miles; and each mile by the ſtatute being 5280 feet, therefore a degree of a meridian will be about 367,200 feet; whence the $\frac{1}{60}$ of that, viz. a minute or nautical mile, muſt contain 6120 ſtandard feet; conſequently, ſince $\frac{1}{2}$ minute is the $\frac{1}{120}$ part of an hour, and each knot being the ſame part of a nautical mile, it follows, that each knot will contain $\frac{1}{120}$ of 6120 feet; viz. 51 feet.

240. VI. Hence it is evident, that whatever number of knots the ſhip runs in half a minute, the ſame number of miles ſhe will run in one hour, ſuppoſing her to run with the ſame degree of velocity during that time; and therefore it is the general way to heave the log every hour to know her rate of ſailing; but if the force or direction of the wind vary, and not continue the ſame during the whole hour; or if there has been more ſail ſet, or any ſail handed, that ſo the ſhip has run ſwifter or ſlower in any part of the hour than ſhe did at the time of heaving the log; then there muſt be an allowance made accordingly for it, and this muſt be according to the diſcretion of the artiſt.

241. VII. Sometimes, when the ſhip is before the wind, and there is a great ſea ſetting after her, it will bring home the log, and conſequently the ſhip will ſail faſter than is given by the log. In this caſe it is uſual, if there be a very great ſea, to allow one mile in ten; and leſs in proportion, if the ſea be not ſo great. But for the generality, the ſhip's way is really greater than that given by the log: and therefore, in order to have the reckoning rather before than behind the ſhip (which is the ſafeſt way), it will be proper to make the ſpace on the log-line between knot and knot to conſiſt of 50 feet inſtead of 51.

242. VIII. If the ſpace between knot and knot on the log-line ſhould happen to be too great in proportion to the half-minute glaſs, viz. greater than 50 feet, then the diſtance given by the log will be too ſhort; and if that ſpace be too ſmall, then the diſtance run (given by the log) will be too great; therefore, to find the true diſtance run in either caſe, having meaſured the diſtance between knot and knot, we have the following proportion, viz. As the true diſtance, 50 feet, is to the meaſured diſtance, ſo are the miles of diſtance given by the log to the true diſtance in miles that the ſhip has run.

243. Ex. 1. Suppoſe a ſhip runs at the rate of 6¼ knots in half a minute; but meaſuring the ſpace between knot and knot, I find it to be 56 feet: Required the true diſtance in miles? Making it, as 50 feet is to 56 feet, ſo is 6·25 knots to 7 knots; I find that the true rate of ſailing is 7 miles in the hour.

244. Ex. II. Suppoſe a ſhip runs at the rate of 6½ knots in half a minute; but meaſuring the ſpace between knot and knot, I find it to be only 44 feet: Required the true rate of ſailing. Making it, as 50 feet is to 44 feet, ſo is 6·5 knots to 5·7 knots; I find that the true rate of ſailing is 5·7 miles in the hour.

245. IX. Again, ſuppoſing the diſtance between knot and knot on the log-line to be exactly 50 feet, but that the glaſs is not 30 ſeconds, then, if the glaſs require longer time to run than 30 ſeconds, the diſtance given will be too great, if eſtimated by allowing one mile for every knot run in the time the glaſs runs; and, on the contrary, if the glaſs requires leſs time to run than 30 ſeconds, it will give the diſtance ſailed too ſmall. Conſequently to find the true diſtance in either caſe, we muſt meaſure the time the glaſs requires to run out (by the method in the following article); then we have the following proportion, viz. As the number of ſeconds the glaſs runs is to half a minute, or 30 ſeconds, ſo is the diſtance given by the log to the true diſtance.

246. Ex. I. Suppoſe a ſhip runs at the rate of 7½ knots in the time the glaſs runs; but meaſuring the glaſs, I find it runs 34 ſeconds: Required the true diſtance ſailed? Making it, as 34 ſeconds is to 30 ſeconds, ſo is 7·5 to 6·6, I find that the ſhip ſails at the rate of 6·6 miles an hour.

247. Ex. II. Suppoſe a ſhip runs at the rate of 6½ knots; but meaſuring the glaſs, I find it runs only 25 ſeconds: Required the true rate of ſailing? Making it, as 25 ſeconds is to 30 ſeconds, ſo is 6·5 knots to 7·8 knots, I find that the true rate of ſailing is 7·8 miles an hour.

248. X. To know how many ſeconds the glaſs runs, you may try it by a watch or clock that vibrates ſeconds; but if neither of theſe be at hand, then take a line, and to the one end faſten a plummet, hang the other upon a nail or peg, ſo as the diſtance from the peg to the centre of the plummet be 39⅛ inches: then this put into motion will vibrate ſeconds, *i. e.* every time it paſſes the perpendicular, you are to count one ſecond; conſequently by obſerving the number of vibrations that it makes during the time the glaſs is running, we know how many ſeconds the glaſs runs.

249. XI. If there be an error both in the log-line and half-minute glaſs, viz. if the diſtance between knot and knot on the log-line be either greater or leſs than 50 feet, and the glaſs runs either more or leſs than 30 ſeconds, then the finding out the ſhip's true diſtance will be ſomewhat more complicate, and admit of three caſes; viz.

250. Case I. If the glaſs runs more than ſeconds, and the diſtance between knot and knot be leſs than 50 feet, then the diſtance given by the log-line, by allowing one mile for each knot the ſhip ſails while the glaſs is running, will always be greater than the true diſtance, ſince each of theſe errors gives the diſtance too great. Conſequently, to find the true rate of ſailing in this caſe

re muſt find (by Art. 8.) the diſtance, on the ſuppo-
tion that the log-line is only wrong, and then with
his (by Art. 9.) we ſhall find the true diſtance.

251. Ex. Suppoſe a ſhip is found to run at the
ite of 6 knots; but examining the glaſs, I find
runs 35 ſeconds; and meaſuring the log-line, I
nd the diſtance between knot and knot to be but
5 feet: Required the true diſtance run? Firſt,
y Art. 8.) We have the following proportion;
iz. As 50 feet : 45 feet : : 6 knots : 5·52 knots.
hen (by Art. 9.) As 35 ſeconds : 30 ſeconds
: 5·52 knots : 4·73 knots. Conſequently the true
te of ſailing is 4·73 miles an hour.

252. CASE II. If the glaſs be leſs than 30 ſeconds,
nd the place between knot and knot be more
an 50 feet, then the diſtance given by the log will
lways be leſs than the true diſtance, ſince either
f theſe errors leſſens the true diſtance.

253. Ex. Suppoſe a ſhip is found to run at the
te of 7 knots, but examining the glaſs, I find
runs only 25 ſeconds; and meaſuring the ſpace
etween knot and knot on the log-line, I find it is
feet: Required the true rate of ſailing? Firſt
y Art. 9.) As 25 ſeconds : 30 ſeconds : : 7 knots :
4 knots 9·072. Then (by Art. 8.) As 50 feet : 54
et : : 8·4 knots : 9·702 knots. Conſequently the
ue rate of ſailing is 9·072 miles an hour.

254. CASE III. If the glaſs runs more than 30
conds, and the ſpace between knot and knot
greater than 50 feet; or if the glaſs runs leſs
an 30 ſeconds, and the ſpace between knot and
ot be leſs than 50 feet: then, ſince in either of
eſe two caſes the effects of the errors are con-
ary, it is plain the diſtance will ſometimes be
o great and ſometimes too little, according as
e greater quantity of the error lies; as will be
ident from the following examples.

255. Ex. I. Suppoſe a ſhip is found to run at
e rate of 9½ knots per glaſs, but examining the
aſs, it is found to run 36 ſeconds; and by
eaſuring the ſpace between knot and knot, it is
und to be 58 feet: Required the true rate of
ling? Firſt (by Art. 8.) As 50 feet : 58 feet :
knots : 11·02 knots. Then (by Art. 9.) As
ſeconds : 30 ſeconds : : 11·02 knots : 8·7 knots.
nſequently the ſhip's true rate of ſailing is 8.7
iles an hour.

256. Ex. II. Suppoſe a ſhip runs at the rate of
knots per glaſs, but examining the glaſs, it is
und to run only 20 ſeconds; and by meaſuring
log-line, the diſtance between knot and knot
found to be but 38 feet: Required the true
e of ſailing? Firſt (by Art. 8.) As 50 feet : 38
t : : 6 knots : 4·56 knots. Then (by Art. 9.)
20 ſeconds : 30 ſeconds : : 4·56 knots : 6·84
ots. Conſequently, the true rate of ſailing is
3 miles an hour. But if in this caſe it happens
t the time the glaſs takes to run be to the diſ-
ce between knot and knot, as 30, the ſeconds
half a minute, is to 50, the true diſtance be-
een knot and knot; then it is plain, that what-
r number of ſeconds the glaſs conſiſts of, and
atever number of feet is contained between
ot and knot, yet the diſtance given by the log-
e will be the true diſtance in miles.

257. XII. Though the method of meaſuring the
p's way by the log-line, deſcribed in the fore-
ing articles, be that which is now commonly made uſe of; yet it is ſubject to ſeveral errors, and theſe very conſiderable. For, firſt, the half minute or quarter minute glaſſes (by which and the log the ſhip's way is determined) are ſeldom or never true, becauſe dry and wet weather have a great influence on them; ſo that at one time they may run more, and at another time fewer than 30 ſeconds; and it is evident that a ſmall error in the glaſs will cauſe a ſenſible one in the ſhip's way. Again, the chief property of the log is to have it ſwim upright, or perpendicular to the horizon; but this is too often wanting in logs, becauſe few ſeamen examine whether it is ſo or not, and generally take it upon truſt, being ſatiſfied if it weigh a little more at the ſtern than the head: and from this there flows an error in the reckoning; for if the log does not ſwim upright, it will not hold water, nor remain ſteady in the place where it is heaved, ſince the leaſt check in the hand in veering the line will make it come up ſeveral feet: this repeated will make the errors ſome fathoms, and perhaps knots, which, how inſignificant ſoever they appear, are miles and parts of miles, and amount to a good deal in a long voyage. Another inconvenience attending the log-line is its ſtretching and ſhrinking; for when a new line is firſt uſed, let it be ever ſo well ſtretched upon the deck, and meaſured as true as poſſible, yet after wetting it ſhrinks conſiderably; and conſequently to be the better aſſured of the ſhip's way by the log-line, we ought to meaſure and alter the knots on it every time before we uſe it; but this is ſeldom done oftener than once a-week, and ſometimes not above once or twice in a whole voyage: alſo when the line is meaſured to its greateſt degree of ſhrinking, it is generally left there; and when, by much uſe, it comes to ſtretch again, it is ſeldom or never mended, though it will ſtretch beyond what it firſt ſhrunk. Theſe and many other errors, too well known, attending that method of meaſuring the ſhip's way by the log-line, plainly account for many errors committed in reckonings. So it is to be wiſhed that this method were improved or amended, or that ſome other method leſs ſubject to error were found out.

258. XIII. The meridian and prime vertical of any place cuts the horizon in 4 points, at 90 degrees diſtance from one another, viz. *North, South, Eaſt*, and *Weſt*; that part of the *meridian* which extends itſelf from the place to the *north* point of the *horizon* is called the *north line*; that which extends to the *ſouth* point of the horizon is called the *ſouth line*; and that part of the *prime vertical* which extends towards the right hand of the obſerver, when his face is turned to the *north*, is called the *eaſt line*; and, laſtly, that part of the *prime vertical* which tends towards the left hand, is called the *weſt line*; the four points in which theſe lines meet the *horizon* are called the *cardinal points*.

259. XIV. To determine the courſe of the winds, and to diſcover the various alterations or ſhiftings, each quadrant of the horizon, intercepted between the meridian and prime vertical, is uſually divided into eight equal parts, and conſequently the whole horizon into 32; and the lines drawn from the place on which the obſerver ſtandeth, to the points of diviſion in his horizon,

are called *rhumb-lines*; the four principal of which are thoſe deſcribed in the preceding article, each of them having its name from the cardinal point in the horizon towards which it tends: the reſt of the rhumb lines have their names compounded of the principal lines on each ſide of them, as in the figure (*plate* CCXLIV, *No.* 1.); and over whichſoever of theſe lines the courſe of the wind is directed, that wind takes its name accordingly.

260. XV. The inſtrument commonly uſed at ſea for directing the ſhip's way is called the Mariner's Compass; which conſiſts of a card and two boxes. The card is a circle made to repreſent the horizon, whoſe circumference is quartered and divided into degrees, and alſo into 32 equal parts, by lines drawn from the centre to the ſeveral points of diviſion, called *points of the compaſs*. On the back ſide of the card, and juſt below the S. and N. line is fixed a ſteel needle with a braſs cupola, or hollow centre in the middle, which is placed upon the end of a fine pin, upon which the card may eaſily turn about: the needle is touched with a loadſtone, by which a certain virtue is infuſed into it, that makes it, and conſequently the S. and N. line on the card above it, hang nearly in the plane of the meridian; by which means the S. and N. lines on the card produced would meet the horizon in the S. and N. points; and conſequently all the other lines on the card produced would meet the horizon in their reſpective points.

261. XVI. The card is repreſented in *pl.* CCXLIV. No. 1. in which the capital letters N, S, E, W, denote the four cardinal points, *viz.* N the *North*, S the *South*, &c. and the ſmaller letter *b* ſignifies the word *by*. The rhumbs in the middle between any two of the cardinals are expreſſed by the letters denoting theſe cardinals, that which denotes the point lying in the meridian having the precedence; thus the rhumb in the middle between the N. and E. is expreſſed N. E. and read *North-eaſt*; S. W. denotes the *South-weſt* rhumb, &c.: the other rhumbs are expreſſed according to their ſituation with reſpect to theſe middle rhumbs and the neareſt cardinals, as is plain from the foreſaid figure.

262. XVII. The card is put into a round box, made for it, having a pin erected in the middle, upon which the hollow centre of the needle is fixed, ſo as the card may lie horizontal, and eaſily vibrate according to the motion of the needle: the box is covered over with a ſmooth glaſs, and is hung in a braſs hoop upon two cylindrical pins, diametrically oppoſite to one another; and this hoop is hung within another braſs circle, upon two pins at right angles with the former. Theſe two circles, and the box, are placed in another ſquare wooden box, ſo that the innermoſt box, and conſequently the card, may keep horizontal which way ſoever the ſhip heels.

263. XVIII. Since the meridians do all meet at the poles, and there form certain angles with one another; and ſince, if we move ever ſo little towards the eaſt or weſt, from one place to another, we change our meridian, and in every place the eaſt and weſt line being perpendicular to the meridian; it follows, that the eaſt and weſt line in the firſt place will not coincide with the eaſt and weſt line in the ſecond, but be inclined to it at a certain angle: and conſequently all the other rhumb lines at each place will be inclined to each other, they always forming the ſame angles with the meridian. Hence it follows, that all rhumbs, except the 4 cardinals, muſt be curves or heliſpherical lines, always tending towards the pole, and approaching it by infinite gyrations or turnings, but never falling into it. Thus let P (No. 2.) be the pole, EQ an arch of the equator, PE, PA, &c. meridians, and EFGHIKL any rhumb: then becauſe the angles PEF, PEG, &c. are by the nature of the rhumb line equal, it is evident that it will form a curve line on the ſurface of the globe, always approaching the pole P, but never falling into it; for if it were poſſible for it to fall into the pole, then it would follow, that the ſame line could cut an infinite number of other lines at equal angles, in the ſame point; which is abſurd.

264. XIX. Becauſe there are 32 rhumbs (or points in the compaſs) equally diſtant from one another, therefore the angle contained between any two of them adjacent will be 11° 15′, viz. $\frac{1}{32}$ part of 360°; and ſo the angle contained between the meridian and the N*b*E will be 11° 15′, and between the meridian and the NNE will be 22° 30′; and ſo of the reſt, as in the following Table.

265. Table *of the* Angles *which every* $\frac{1}{4}$ Point *of the* Compass *makes with the* Meridian.

North.	*South.*	*Points.*	*D.*	*M.*	*North,*	*South.*
		$\frac{1}{4}$	02	49		
		$\frac{1}{2}$	05	37		
		$\frac{3}{4}$	08	26		
N*b*E	S*b*E	1	11	15	N*b*W	S*b*W
		1 $\frac{1}{4}$	14	04		
		1 $\frac{1}{2}$	16	52		
		1 $\frac{3}{4}$	19	41		
NNE	SSE	2	22	30	NNW	SSW
		2 $\frac{1}{4}$	25	19		
		2 $\frac{1}{2}$	28	09		
		2 $\frac{3}{4}$	30	56		
NE*b*N	SE*b*S	3	33	45	NW*b*N	SW*b*W
		3 $\frac{1}{4}$	36	34		
		3 $\frac{1}{2}$	39	22		
		3 $\frac{3}{4}$	42	11		
NE	SE	4	45	00	NW	SW
		4 $\frac{1}{4}$	47	49		
		4 $\frac{1}{2}$	50	37		
		4 $\frac{3}{4}$	53	26		
NE*b*E	SE*b*E	5	56	15	NW*b*W	SW*b*W
		5 $\frac{1}{4}$	59	04		
		5 $\frac{1}{2}$	61	52		
		5 $\frac{3}{4}$	64	42		
ENE	ESE	6	67	30	WNW	WSW
		6 $\frac{1}{4}$	70	19		
		6 $\frac{1}{2}$	73	07		
		6 $\frac{3}{4}$	75	56		
E*b*N	E*b*S	7	78	45	W*b*N	W*b*S
		7 $\frac{1}{4}$	81	34		
		7 $\frac{1}{2}$	84	22		
		7 $\frac{3}{4}$	87	11		
Eaſt.		8	90	00	*Weſt.*	

No. 1

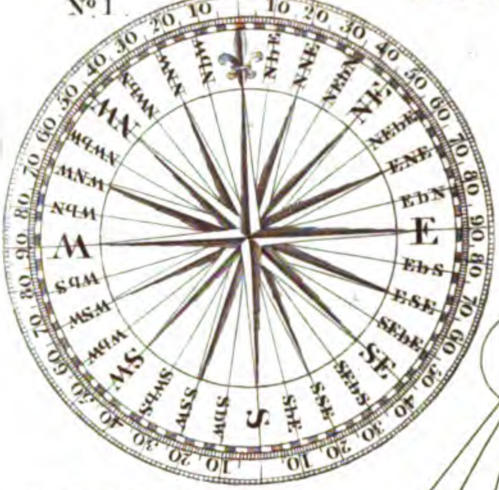
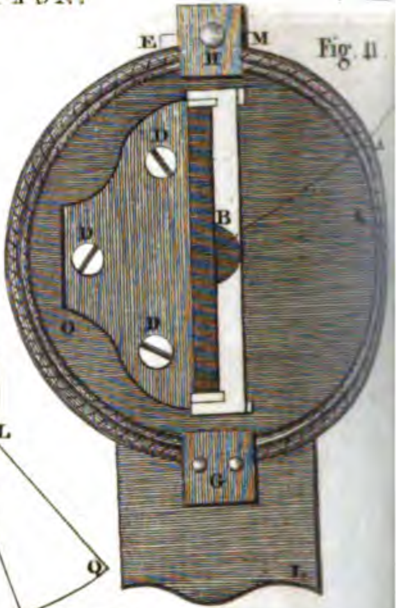
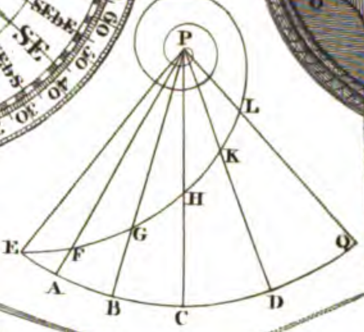


Fig. 41

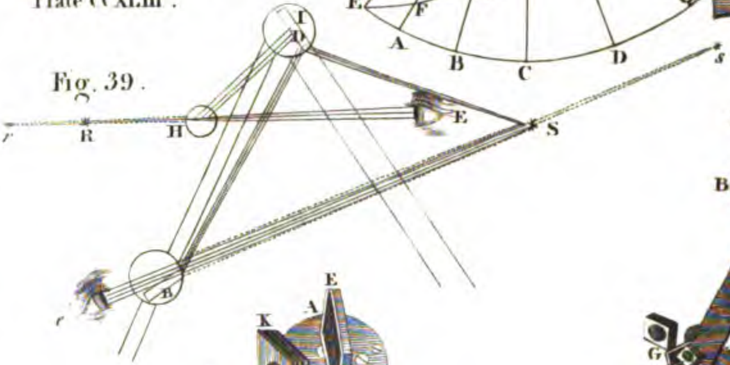


No. 2.



N.B. Figs. 26 and 30, referred to this Plate, are engraved on Plate CCXLIII.

Fig. 39.



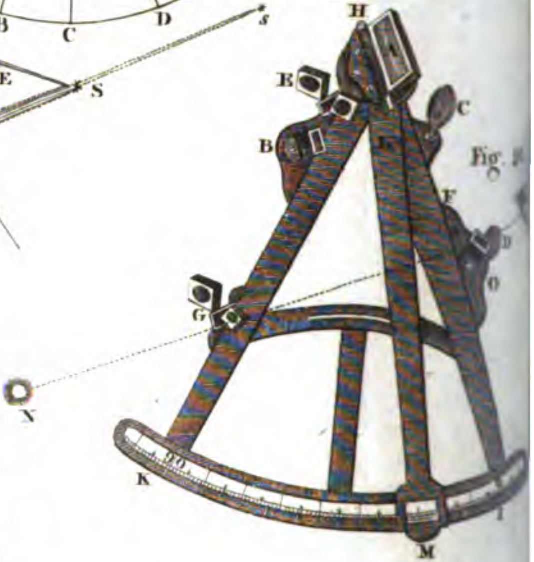


Fig. 36.

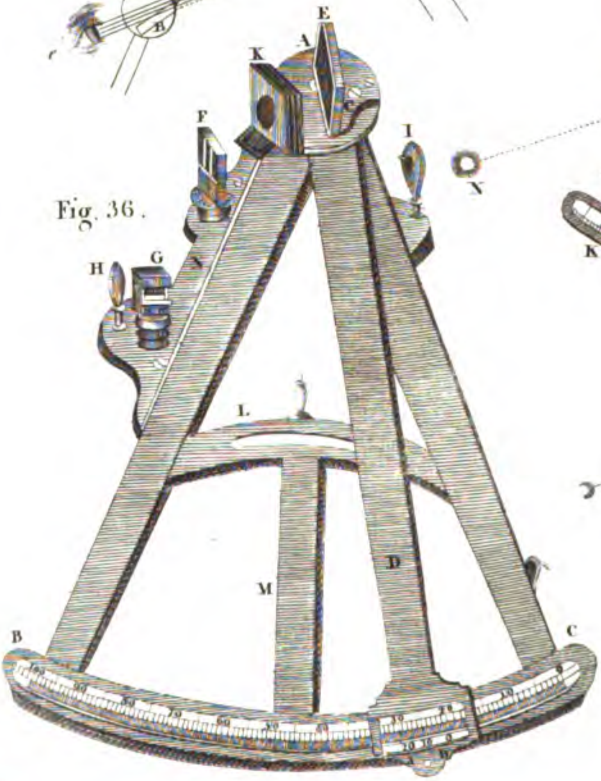
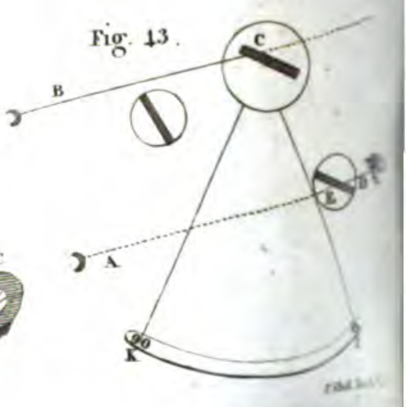


Fig. 43.



Sect. VIII. *Of* Currents, *and how to make* PROPER ALLOWANCES.

266. Currents are certain ſettings of the ſtream, by which all bodies (as ſhips, &c.) moving therein, are compelled to alter their courſe or velocity, or both; and ſubmit to the motion impreſſed upon them by the current.

267. Case I. If the current ſets juſt with the courſe of the ſhip, *i. e.* moves on the ſame rhumb with it; then the motion of the ſhip is increaſed by as much as is the drift or velocity of the current.

268. Ex. Suppoſe a ſhip ſails SE*b*S at the rate of 6 miles an hour, in a current that ſets SE*b*S 2 miles an hour: Required her true rate of ſailing? Here it is evident that the ſhip's true rate of ſailing will be 8 miles an hour.

269. Case II. If the current ſets directly againſt the ſhip's courſe, then the motion of the ſhip is leſſened by as much as is the velocity of the current.

270. Ex. Suppoſe a ſhip ſails SSW. at the rate of 10 miles an hour, in a current that ſets NNE 6 miles an hour: Required the ſhip's true rate of ſailing? Here it is evident that the ſhip's true rate of ſailing will be 4 miles an hour. Hence it is plain,

271. Cor. I. If the velocity of the current be leſs than the velocity of the ſhip, then the ſhip will get ſo much a-head as is the difference of theſe velocities.

272. Cor. II. If the velocity of the current be greater than that of the ſhip, then the ſhip will fall ſo much aſtern as is the difference of theſe velocities.

273. Cor. III. Laſtly, if the velocity of the current be equal to that of the ſhip, then the ſhip will ſtand ſtill; the one velocity deſtroying the other.

274. Case III. If the current thwarts the courſe of the ſhip, then it not only leſſens or augments her velocity, but gives her a new direction compounded of the courſe ſhe ſteers and the ſetting of the current, as is manifeſt from the following.

275. Lemma. If a body at A (N°. 26.) be impelled by two forces at the ſame time, the one in the direction AB capable to carry that body from A to B in a certain ſpace of time, and the other in the direction AD capable to carry it from A to D in the ſame time; complete the parallelogram ABCD, and draw the diagonal AC, then the body at A, agitated by theſe two forces together, will move along the line BC, and will be in the point C at the end of the time in which it would have moved along AD or AB with the forces ſeparately applied. Hence the ſolution of the following examples will be evident.

276. Ex. I. Suppoſe a ſhip ſails (by the compaſs) directly S. 96 miles in 24 hours, in a current that ets eaſt 45 miles in the ſame time: Required the hip's true courſe and diſtance?

277. Geomet. Draw AD (ſee *Pl.* CCXLIV, N° 6.) to repreſent the S. and N. line of the ſhip at , which make equal to 96; from D draw DC erpendicular to AD, equal to 45; and join A C. Then C will be the ſhip's true place, AC her true iſtance, and the angle CAD the true courſe.

278. To find which, By Calculation; Firſt, For the true courſe DAC, it will be (by rectangular trigonometry),

As the apparent diſtance AD	96	1·98227
is to the current's motion DC	45	1·65321
ſo is radius		10·00000
to the tangent of the true courſe DAC	25°, 07′	9·67094

conſequently the ſhip's true courſe is S 25° 67′ E, or SSE 2° 37′ eaſterly.

Then for the true diſtance AC, it will be (by rectangular trigonometry),

As the ſine of the courſe A	25°, 07′	9·62784
is to the departure DC	45	1·65421
ſo is radius		10·00000
to the true diſtance AC	106	2·02537

279. Ex. Suppoſe a ſhip ſails SE. 120 miles in 20 hours, in a current that ſets W*b*N at the rate of 2 miles an hour: Required the ſhip's true courſe and diſtance ſailed in that time?

280. Geomet. Having drawn the compaſs NESW (N°. 27.) let C repreſent the place the ſhip ſailed from; draw the SE line CA, which make equal to 120; then will A be the place the ſhip caped at. From A draw AB parallel to the W*b*N line CD equal to 40, the motion of the current in 20 hours, and join CB; then B will be the ſhip's true place at the end of 20 hours, CB her true diſtance, and the angle SCB her true courſe. To find which,

281. By Calculation; In the triangle ABC, are given CA 120, AB 40, and the angle CAB equal to 34° 45′, the diſtance between the E*b*S and SE lines, to find the angles B and C. and the ſide CB. Firſt, For the angles C and B, it will be (by oblique trigonometry),

As the ſum of the ſides CA and AB	160,	2·20412
is to their difference	80	1·90309
ſo is the tang. of half the ſum of the angles B and C	73°, 07′	10·51783
to the tang. of half the diff.	59, 45	10·21680

conſequently the ang. B. will be 131°, 52′ and the angle ACB 14° 23′. Hence the true courſe is S 30° 37′ E, or SSE 2° 07′ eaſterly. Then for the true diſtance CB, it will be (by oblique trigonometry),

As the ſine B	131°, 52′	9·87198
is to AC	120	2·07918
ſo is the ſine of A	33°, 45′	9·74474
to the true diſtance CB	89·53	1·95194

282. Ex. III. Suppoſe a ſhip, coming out from ſea in the night, has ſight of Scilly light, bearing NE*b*N diſtance 4 leagues, it being then flood tide ſetting ENE 2 miles an hour, and the ſhip running after the rate of 5 miles an hour: Required upon what courſe and how far ſhe muſt ſail to hit the Lizard, which bears from Scilly E ½ S diſtance 17 leagues?

283. *Geom.* Having drawn the compaſs NESW (N° 28.) let A repreſent the ſhip's place at ſea, and draw the NE*b*N lines AS, which make equal to 12 miles; ſo S will repreſent Scilly. From S draw SL equal to 51 miles, and parallel to the E ½ S line; then L will repreſent the Lizard, From L draw LC parallel to the ENE line equal to 2 miles, and from C draw CD equal to 5 miles meeting AL in D; then from A draw

AB

From the ſun's true amplitude	W. 34° 26′ S.
take the magnetic amplitude	W. 23 13 S.
there remains the variation	11 13 W.

which is weſterly, becauſe the true amplitude, in this caſe, is to the left hand of the obſerved.

301. Ex. III. Suppoſe the ſun's true altitude at riſing is found to be 13° 24′ N. and his magnetic E. 12° 32′ S.: Required the variation, and which way it lies? Since the true and obſerved amplitudes lie different ways, therefore,

To the true amplitude	E. 13° 24′ N.
add the magnetic amplitude	E. 12 32 E.
the ſum is the variation	25 56 W.

which is weſterly, becauſe the true amplitude is, in this caſe, to the left of the obſerved.

302. Ex. IV. Suppoſe the ſun's true altitude at ſetting is found to be W. 8° 24′ N. but his magnetic amplitude is W. 10° 13′ S.: Required the variation?

To the true amplitude	W. 8° 24′ N.
add the magnetic	W. 10 13 S.
the ſum is the variation	18 37 E.

which is eaſterly, becauſe the true amplitude is to the right of the obſerved.

303. Ex. V. Suppoſe the ſun's true azimuth at the time of obſervation is found to be N. 86° 40′ E. but by the compaſs it is N. 73° 24′ E.: Required the variation, and which way it lies?

From the ſun's true azimuth	N. 86° 40′ E.
take the magnetical	N. 73 24 E.
there remains the variation	13 16 E.

which is eaſterly, becauſe the true azimuth is to the right of the obſerved.

304. Ex. VI. Suppoſe the ſun's true azimuth is S. 3° 24′ E. and the magnetical S. 4° 36′ W.: Required the variation, and which way it lies.

To the true azimuth	S. 3° 24′ E.
add the magnetical azimuth	S. 4 36 W.
the ſum is the variation	8 00 W.

which is weſterly, becauſe the true azimuth is, in this caſe, to the left of the obſerved.

305. X. The variation of the compaſs was firſt obſerved at London, in 1580, to be 11° 15′ eaſterly; in 1622 it was 6° 0′ E.; in 1634 it was 4° 05′ E. ſtill decreaſing; and the needle approaching the true meridian, till it coincided with it, and then there was no variation; after which, the variation began to be weſterly; and in 1672 it was obſerved to be 2° 30′ W.; in 1683 it was 4° 30′ W.; and ſince that time the variation ſtill continues at London to increaſe weſterly; but how far it will go that way, time and obſervations will diſcover. At Paris, in 1640, the variation was 3° 00′ E.; and in 1666 there was no variation; but in 1681 it was 2° 30′ W. and ſtill continues to go weſterly. In ſhort, from obſervations made in different parts of the world, it appears, that in different places the variation differs both as to its quantity and denomination, it being E. in one place, and W. in another; the true cauſe and theory of which, for want of a ſufficient number of obſervations, has not as yet been fully explained.

Sect. X. *The* METHOD *of* KEEPING *a* JOURNAL *at* SEA; *and how to* CORRECT *it, by making* PROPER ALLOWANCE *for the* LEE-WAY VARIATION, *&c.*

306. I. Lee-way is the angle that the rhumb line, upon which the ſhip endeavours to ſail, makes with the rhumb ſhe really ſails upon. This is occaſioned by the force of the wind or ſurge of the ſea, when ſhe lies to the windward, or is close hauled, which cauſes her to fall off, and glide ſide-wiſe from the point of the compaſs ſhe capes at. Thus let NESW. (N° 31.) repreſent the compaſs, and ſuppoſe a ſhip at C capes at, or endeavours to ſail upon, the rhumb C *a*, but by the force of the wind and ſurge of the ſea ſhe is obliged to fall off, and make her way good upon the rhumb C *b*, then the angle *a* C *b* is the lee-way; and if that angle be equal to one point, the ſhip is ſaid to make one point lee-way; and if equal to two points, the ſhip is ſaid to make two points lee way, &c.

307. II. The quantity of this angle is very uncertain, becauſe ſome ſhips, with the ſame quantity of ſail, and with the ſame gale, will make more lee-way than others; it depends very much upon the mould and trim of the ſhip, and the quantity of water that ſhe draws. The common allowances generally made for the lee-way are as follow:

308. i. If a ſhip be cloſe hauled, has all her ſails ſet, the water ſmooth, and a moderate gale of wind, ſhe is then ſuppoſed to make little or no lee-way. ii. If it blow ſo freſh as to cauſe the ſmall ſails to be handed, it is uſual to allow one point. iii. If it blow ſo hard that the top-ſails muſt be cloſe reefed, then the common allowance is two points for lee-way. iv. If one top-ſail muſt be handed, then the ſhip is ſuppoſed to make between two and three points lee-way. v. When both top-ſails muſt be handed, then the allowance is about four points for lee-way. vi. If it blows ſo hard as to occaſion the fore courſe to be handed, the allowance is between 5½ and 6 points. vii. When both main and fore courſes muſt be handed, then 6 or [illegible] points are commonly allowed for lee-way. [illegible] When the mizen is handed, and the ſhip is trying a-hull, ſhe is then commonly allowed about [illegible] points for lee-way.

309. III. Though theſe rules are generally made uſe of, yet ſince the lee-way depends much upon the mould and trim of the ſhip, it is evident that they cannot exactly ſerve to every ſhip; and therefore the beſt way is to find it by obſervation. Thus, let the ſhip's wake be ſet by a compaſs upon the poop, and the oppoſite rhumb is the true courſe made good by the ſhip; then the difference between this and the courſe given by the compaſs in the binnacle, is the lee-way required. If the ſhip be within ſight of land, then the lee-way may be exactly found, by obſerving a point of land which continues to bear the ſame way, then the diſtance between the point of the compaſs it lies upon, and the point the ſhip capes at, will be the lee-way. Thus, ſuppoſe a ſhip at C is [illegible] up N*b*W. towards A; but inſtead of keeping that courſe, ſhe is carried on the NNE. line CB, and con-

ſequeequently the point B continues to bear the ſame vay from the ſhip: here it is evident that the ngle ACB, or the diſtance between the N*b*W line hat the ſhip capes at, and the NNE line that the hip really ſails upon, will be the lee-way.

310. IV. Having the courſe ſteered, and the lee-ay given; we may from thence find the true ourſe by the following method, *viz*. Let your ice be turned directly to the windward; and if he ſhip have her larboard tacks on board, count he lee-way from the courſe ſteered towards the ight hand; but if the ſtarboard tacks be on board, hen count it from the courſe ſteered towards the ft hand. Thus, ſuppoſe the wind at N. and the hip lies up within 6 points of the wind, with her rboard tacks on board, making one point lee-ay; here it is plain, that the courſe ſteered is NE, and the true courſe E*b*N: alſo ſuppoſe the ind is at NNW, and the ſhip lies up within 6¼ oints of the wind, with her ſtarboard tack on oard, making 1¼ points lee-way; it is evident at the true courſe, in this caſe, is WSW.

311. V. We have ſhewed, in the laſt ſection, ow to find the variation of the compaſs; and om what has been ſaid there, we have this gene-l rule for finding the ſhip's true courſe, having e courſe ſteered and the variation given, viz. Let our face be turned towards the point of the com-ſs upon which the ſhip is ſteered; and if the riation be eaſterly, count the quantity of it from e courſe ſteered towards the right hand; but weſterly, towards the left hand; and the courſe us found is the true courſe ſteered. Thus, ſup-ſe the courſe ſteered is N*b*E, and the variation e point eaſterly; then the true courſe ſteered ill be NNE; alſo, ſuppoſe the courſe ſteered is E*b*E, and the variation one point weſterly; then, this caſe, the true courſe will be NE; and ſo others. Hence, by knowing the lee-way vari-ion and courſe ſteered, we may thence find the ip's true courſe; but if there be a current under ot, then that muſt be tried, and proper allow-ces made for it, as has been ſhown in the ſec-n concerning *Currents*, from thence to find the e courſe.

312. VI. After making all the proper allowan- for finding the ſhip's true courſe, and making juſt an eſtimate of the diſtance as we can; yet, reaſon of the many accidents that attend a p in a day's running, ſuch as different rates of ling between the times of heaving the log; the nt of due care at the helm by not keeping her ady, but ſuffering her to yaw and fall off; ſud-n ſtorms, when no account can be kept, &c.; latitude by account frequently differs from latitude by obſervation; and when that hap-s, it is evident there muſt be ſome error in the koning; to diſcover which, and where it lies, l alſo how to correct the reckoning, you may erve the following rules:

13. Iſt, If the ſhip ſail near the meridian, or hin 2 or 2½ points thereof; then if the latitude account diſagrees with the latitude by obſer-ion, it is moſt likely that the error lies in the ance run; for it is plain, that in this caſe it will uire a very ſenſible error in the courſe to make conſiderable error in the difference of latitude, ich cannot well happen if due care be taken at the helm, and proper allowances be made for the lee-way, variation, and currents. Conſequently, if the courſe be pretty near the truth, and the error in the diſtance run regularly through the whole, we may, from the latitude obtained by obſervation, correct the diſtance and departure by account, by the following analogies, viz. As the difference of latitude by account is to the true difference of latitude, So is the departure by account to the true departure, And ſo is the direct diſtance by account to the true direct diſtance. The reaſon of this is plain: for let AB (No. 33.) denote the meridian of the ſhip at A, and ſuppoſe the ſhip ſails upon the rhumb AE near the meridian, till by account ſhe is found in C, and conſequently her difference of latitude by account is AB; but by obſervation ſhe is found in the parallel ED, and ſo her true difference of latitude is AD, her true diſtance AE, and her true departure DE; then, ſince the triangles ABC ADE are ſimilar, it will be AB : AD :: BC : DE; and AB : AD :: AC : AE.

314. Ex. Suppoſe a ſhip from lat. 45° 20′ N. after having ſailed upon ſeveral courſes near the meridian for 24 hours, her difference of latitude is computed to be upon the whole 95 miles ſoutherly, and her departure 34 miles eaſterly; but by obſervation ſhe is found to be in lat. 43° 10′ N. and conſequently her true difference of latitude is 130 miles ſoutherly: then for the true departure, it will be, As the difference of latitude by account 95 is to the true difference of latitude 130; ſo is the departure by account 34 to the true departure 46·52, and ſo is the diſtance by account 100·9 to the true diſtance 138.

315. IIdly, If the courſes are for the moſt part near the parallel of E. and W. and the direct courſe be within 5½ or 6 points of the meridian; then if the latitude by account differs from the obſerved latitude, it is moſt probable that the error lies in the courſe or diſtance, or perhaps both; for in this caſe it is evident, the departure by account will be very nearly true; and thence by the help of this, and the true difference of latitude, may the true courſe and direct diſtance be readily found by *Caſe* 4. *of Plane Sailing*.

316. Ex. Suppoſe a ſhip from lat. 43° 50′ N. after having ſailed upon ſeveral courſes near the parallel of E. and W. for 24 hours, is found by dead reckoning to be in lat. 42° 45′ N. and to have made 160 miles of weſting; but by a good obſervation the ſhip is found to be in lat. 41° 35′ N. Required the true courſe and diſtance ſailed? With the true difference of lat. 75 miles, and departure 160 miles, we ſhall find by *Caſe* 4. *of Plane Sailing*, the true courſe to be S. 64° 53′ W. and the direct diſtance 176·7 miles.

317. IIIdly, If the courſes are for the moſt part near the middle of the quadrant, and the direct courſe within 2 and 6 points of the meridian; then the error may be either in the courſe or in the diſtance, or in both, which will cauſe an error both in the difference of latitude and departure; to correct which, having found the true difference of latitude by obſervation, with this, and the direct diſtance by dead reckoning, find a new departure (by *Caſe* 3. *of Plane Sailing*:) then half the ſum of this departure, and that by dead reckoning,

koning, will be nearly equal to the true departure; and conſequently with this, and the true difference of latitude, we may (by *Caſe* 4. *of Plane Sailing*) find the true courſe and diſtance.

318. Ex. Suppoſe a ſhip from lat. 44° 38′ N. ſails between S. and E. upon ſeveral courſes, near the middle of the quadrant, for 24 hours, and is then found by dead reckoning to be in lat. 42° 14′ N. and to have made of eaſting 136 miles; but by obſervation ſhe is found to be in lat. 41° 04′ N. Required her true courſe and diſtance? With the true diſtance of latitude 154 miles, and the direct diſtance by dead reckoning 197·4, you will find (by *Caſe* 3. *of Plane Sailing*) the new departure to be 123·4 and half the ſum of this and the departure by dead reckoning will be 123·7 the true departure; then with this, and the true difference of latitude, you will find (by *Caſe* 4. *of Plane Sailing*,) the true courſe to be S. 39° 00′ E. and the direct diſtance 198·2 miles.

319. VII. In keeping a ſhip's reckoning at ſea, the common method is to take from the log-board the ſeveral courſes and diſtances ſailed by the ſhip laſt 24 hours, and to transfer theſe, together wit the moſt remarkable occurrences, into the log-book; into which alſo are inſerted the courſes corrected, and the difference of latitude and differenc of longitude made good upon each; then the wh day's work being finiſhed in the log-book, if the la titude by account agree with the latitude by obſer vation, the ſhip's place will be truly determined; if not, then the reckoning muſt be corrected accor ing to the preceding rules, and placed in the jour

320. The form of the log-book and journal, w an example of 2 days work, are here ſubjoined. To expreſs the days of the week, they commonly u the characters by which the ſun and planets are ex preſſed, viz. ☉ denotes *Sunday*, ☽ *Monday*, ♂ *Tueſday*, ☿ *Wedneſday*, ♃ *Thurſday*, ♀ *Fri* ♄ *Saturday*.

Sect. IX. *The* Form *of the* Log-Book, *with the* Manner *of* working two Days Work *at* Sea.

321. *The* Log-Book.

H.	K.	½K.	Courſes.	Winds.	Obſervations and Accidents. ☽ — Day of —
1				North.	Fair weather, at four this afternoon I took my departure from the Lizard, in the latitude of 50° 00′ north, it bearing NNE. diſtance 5 leagues.
2					
3					
4			SW*b*S.	N*b*E.	
5	7				
6	7				
7	7	1			
8	7	1			
9	6				
10	6		SSW.	E*b*S.	The gale increaſing and being under all our ſails.
11	6				
12	6	1			
1	6	1	SW*b*W.	NNE.	After three this morning, frequent ſhowers with thick weather till near noon.
2	6	1			
3	6	1			
4	7				
5	8	1			
6	8				
7	8		SW.	ENE	The variation I reckon to be one point weſterly.
8	8				
9	8	1			
10	9		SW½W.	NE*b*E.	
11	8	1			
12	8				

The Log-Book.

Courſes Correct.	Diſt.	Diff. Lat.		Diff. Lon.	
		N.	S.	E.	W.
SSW.	50		46·2		[illegible]
S*b*W.	19		18·6		[illegible]
SW.	49		29·7		[illegible]
SW*b*S.	24·5		20·2		[illegible]
SW½S.	25·5		19·5		[illegible]
			134·2		[illegible]

322. Hence the ſhip, by account, has come the latitude of 47° 46′ north, and has differ longitude 2° 5′ weſterly; ſo this day I have ma my way good S. 31° 31′ W. diſtance 157·4 m

323. At noon the Lizard bore from me N. 31′ E. diſtance 157·4 miles; and having obſer the latitude, I found it agreed with the by account.

324. *The* LOG-BOOK.

H.	K.	½K.	Courſes. Winds.	Obſervations and Accidents ♂ — Day of ———
1	2		SSW. W.	Theſe 24 hours,
2	1	1	Handed the main	ſtrong gale of wind
3	1	1	and fore courſes,	and variable.
4	1	1	lee-way 6 points.	
5	1	1		
6	1			
7	1			
8	1	1	The wind increa-	
9	1		ſing, we tried a	
10	1		hull, lee-way 7	The variation I
11	1		points.	judge to be 1 point
12	1	1		weſt.
1	2		SW*b*W NW*b*W	
2	1	1	Set main-ſail, lee-	
3	1		way 4½ points.	
4	1			
5	1			
6	1	1		
7	1			
8	4		S*b*E SW*b*W	
9	4	1	Set fore-ſail, lee-	
10	4	1	way 3 points.	
11	5			Lat. by obſerva-
12	4	1		tion, 47° 06′ N.

The LOG-BOOK.

Courſes Correct.	Diſt.	Diff. Lat.		Diff. Lon.	
		N.	S.	E.	W.
S E *b* E	32·5		17·8	37·7	
E S E	6		2·3	10·6	
S½E	9		8·9	1·3	
			29·0	49·6	

325. Hence the ſhip, by account, has come to the latitude of 47° 17′ north, and has differed her longitude 49′ eaſterly; conſequently ſhe has got 1° 16′ to the weſtward of the Lizard, and has made her way good the laſt 24 hours S49° 08′ E. diſtance 44·3 miles.

326. At noon the Lizard bore from me north 17° 7′ eaſt, diſtance 170·6 miles.

327. This day I had an obſervation, and found the latitude by account to diſagree with the latitude by obſervation by 11 minutes, I being ſo much further to the ſouthward than by dead reckoning, which by the third of the preceding rules I correct as in the Journal.

328. A JOURNAL *from the* LIZARD *towards* JAMAICA *in the* SHIP NEPTUNE, *J. M. Commander.*

Week Days.	Months Days.	Months Days.	Winds.	Direct Courſe.	Diſt. Miles	Lat. Correct.	Whole Diff. Lon. made.	Bearing and Diſt. from the Lizard.	Remarkable Obſervations and Accidents.
☽	—	—	N *b* E E *b* S N N E E N E N E *b* E	S 31, 31 W	157·4	47°, 47′	2°, 5′ W.	At noon the Lizard bore N. 31° 31′ E. Diſtance 157·4 miles.	Fair weather at 4 *P. M.* I took my departure from the Lizard, it bearing NNE Diſtance 5 leagues.
♂			Weſt NW*b*W SW*b*W	S 34, 01 F	8·2	47°, 06	1°, 55′ W.	At noon the Lizard bore S. 17° 55′ W. Diſt. 183 miles.	Strong gales of wind and variable.

ECT. XII. INSTRUMENTS *propoſed to* SOLVE *the* VARIOUS PROBLEMS *in* SAILING, *independent of* CALCULATION.

329. VARIOUS methods, beſides thoſe already ven, have been propoſed to ſave the trouble of lculation.—One of theſe methods is by means an inſtrument compoſed of rulers, ſo diſpoſed to form a right-angled triangle, having numers in a regular progreſſion marked on their les. Theſe inſtruments are made of different materials, ſuch as paper, wood, braſs, &c. and are differently conſtructed, according to the fancy of the inventor. Among inſtruments of this kind, that by John Cooke, Eſq. ſeems to be the beſt. See *Plate* CCXLV. A number of other inſtruments, very differently conſtructed, have been propoſed for the ſame purpoſe; but we ſhall only take notice of this.

330. DESCRIPTION *of* COOKE'S TRIANGULAR INSTRUMENT. The ſtock *a b c d* (*Fig.* 34.) is a parallelopiped; the length from *a* to *b* is two feet,

the breadth from *a* to *d* two inches, and the depth is one inch and a half. The ſtock is perforated longitudinally, ſo as to be capable of containing within it *e f*, a cylindrical piece of wood one inch diameter; *g h* is an aperture on the ſurface of the ſtock about a quarter of an inch wide, which diſcloſes one 12th part of the ſurface of the cylinder contained; the edge *d c* is divided into 12 parts, each of theſe is divided into 6 parts, and each of theſe again into 10 parts. The ſurface of the cylinder is divided longitudinally into 12 parts, and on each of them is engraved a portion of a line of meridional parts 22 feet long, which contains the meridional parts for every minute from the equator as far towards the pole as navigation is practicable; and the ſmalleſt diviſion on it is not leſs than one 20th of an inch. By rolling and ſliding this cylinder, any part of any line on it may be brought into any poſition which may be required: the box *i* is engrooved into the edge of the ſtock *a b*, ſo that it may move freely from *a* to *b*: a limb from this box extends to *k*, which ſerves to mark that degree of the perpendicular *i l* which is parallel to the ſemicircle *m*; *i l* is two feet long, and graduated on both edges as the ſtock; it is perpendicular to the ſtock, and is fixed in the box *i*, by which it may be moved from *a* to *b*; *o p n* is a ſemicircle of 6 inches radius, engrooved, as appears in the plate, which ſlides freely from *c* to *d* in a groove in the edge of the ſtock *c d*; *m q* is the index moving on the centre *m*, the edge of which marks the courſe on the ſemicircle; it is two feet long, and divided into 72 parts; and theſe are ſubdivided in the ſame manner as thoſe on the ſtock and perpendicular, to which they are equal; *r* is a vernier attached to the index to ſhew the minutes; S is a vernier compoſed of concentric ſemicircles, which ſlides along the edge *q m*, to the interſection of the perpendicular and index, where it ſerves as a vernier to both; below *x* is a ſmall piece of ivory, with a mark on it to point out the degree of the line *d c*, which is perpendicularly under the centre of the ſemicircle. *Fig.* 35. is a view of the back part of the inſtrument.

331. The method of working every caſe which occurs in navigation, is to make the inſtrument ſimilar to that ideal triangle which is compoſed of the difference of latitude, departure, and diſtance; or, to that compoſed of the meridional difference of longitude and enlarged diſtance; or, to that compoſed of the difference of longitude, departure, and ſine of the middle latitude; which is done by means of the data procured from the compaſs, log-line, and quadrant; whence it follows, from the nature of ſimilar triangles, or from the relation which exiſts between the ſides of triangles and the ſines of their oppoſite angles, that the parts of the inſtrument become proportional to thoſe which they repreſent; and will aſcertain the length of the lines, or the extent of the angles ſought, by its graduations. In the practice of this inſtrument, a ſmall ſquare is neceſſary, to bring the centre of the ſemicircle perpendicularly over the meridional degree correſponding to the latitude.

SECT. XIII. *Of* HADLEY'S QUADRANT.

332. As HADLEY's quadrant is the chief inſtrument in uſe at preſent for obſerving altitudes at ſea, we ſhall conclude this treatiſe with ſome account of it. The form of it, according to the preſent mode of conſtruction, is an octagonal ſector of a circle, and therefore contains 45°; but, becauſe of the double reflection, the limb is divided into 90°. See ASTRONOMY and QUADRANT. *Plate* CCXLV, *fig.* 36, repreſents a quadrant of the common conſtruction, of which the following are the principal parts: ABC, the frame of the quadrant. BC, the arch or limb. D, the index; *a b*, the ſubdividing ſcale. E, the index-glaſs. F, the fore horizon-glaſs. G, the back horizon-glaſs. K, the coloured or dark glaſſes. HI, the vanes or ſights.

333. The FRAME of the QUADRANT conſiſts of an arch BC, firmly attached to the two radii AB, AC, which are bound together by the braces LM, in order to ſtrengthen it, and prevent it from warping.

334. The index D is a flat bar of braſs, and turns on the centre of the octant: at the lower end of the index there is an oblong opening; to one ſide of this opening the vernier ſcale is fixed, to ſubdivide the diviſions of the arch; at the end of the index there is a piece of braſs, which bends under the arch, carrying a ſpring to make the ſubdividing ſcale lie cloſe to the diviſions. It is alſo furniſhed with a ſcrew, to fix the index in any deſired poſition. The beſt inſtruments have an adjuſting ſcrew fitted to the index, that it may be moved more ſlowly, and with greater regularity and accuracy, than by the hand. It is proper, however, to obſerve, that the index muſt be previouſly fixed near its right poſition by the above-mentioned ſcrew.

335. Upon the index, and near its axis of motion, is fixed the INDEX GLASS E, a plane ſpeculum, or mirror of glaſs quickſilvered. It is ſet in a braſs frame, and is placed ſo that its face is perpendicular to the plane of the inſtrument. This mirror being fixed to the index moves along with it, and has its direction changed by the motion thereof; and the intention of this glaſs is to receive the image of the ſun, or any other object, and reflect it upon either of the two horizon glaſſes, according to the nature of the obſervation. The braſs frame with the glaſs is fixed to the index by the ſcrew *c*; the other ſcrew ſerves to replace it in a perpendicular poſition, if by any accident it has been deranged.

336. On the radius AB of the octant are two ſmall ſpeculums, called *Horizon Glaſſes* I, G. The ſurface of the upper one is parallel to the index glaſs, and that of the lower one perpendicular thereto, when *o* on the index coincides with *o* on the limb. Theſe mirrors receive the reflected rays and tranſmit them to the obſerver. The horizon glaſſes are not entirely quickſilvered; the upper one F is only ſilvered on its lower half, or that next the plane of the quadrant, the other half being left tranſparent, and the back part of the frame cut away, that nothing may impede the ſight through the unſilvered part of the glaſs. The edge of the foil of this glaſs is nearly parallel to the plane of the inſtrument, and ought to be very ſharp, and without a flaw. The other horizon glaſs is ſilvered at both ends. In the middle there

a

Fig. 44.

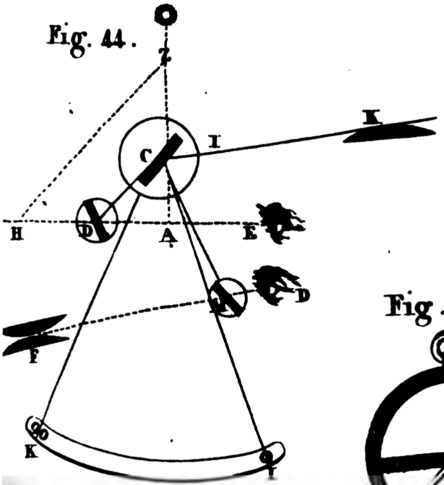


Fig. 42.

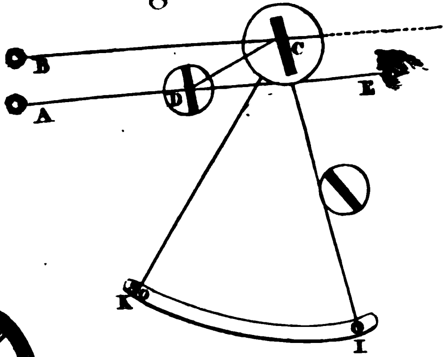
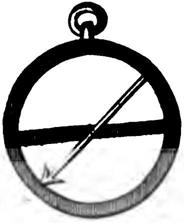


Fig. 1.



Dipping Needle Fig. 2.

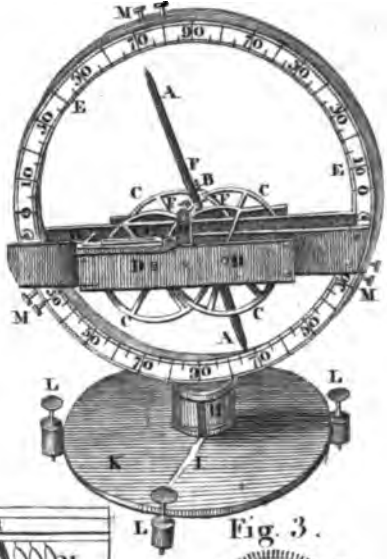


Fig. 34 referred to this plate, engraved on plate CCXLIII; and 36 on Plate CCXLIV.

Inland Navigation.

Fig. 2.

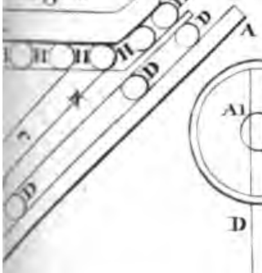
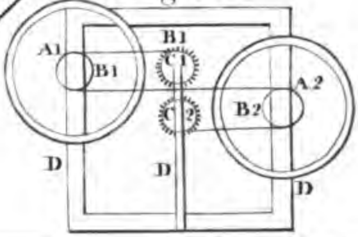


Fig. 5.



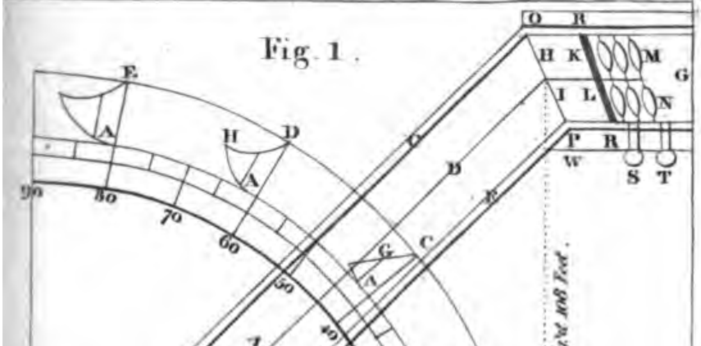


Fig. 1.

Fig. 3.

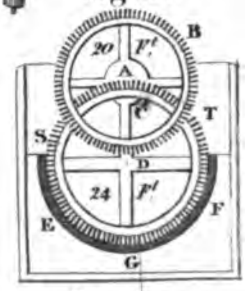
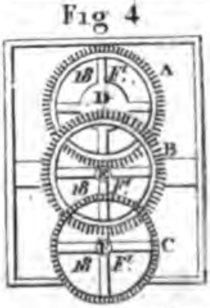


Fig 4



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s a tranſparent ſlit, through which the horizon may be ſeen.

337. Each of theſe glaſſes is ſet in a braſs frame, o which there is an axis paſſing through the wood work, and it is fitted to a lever on the under ſide of the quadrant, by which the glaſs may be turned few degrees on its axis, to ſet it parallel to the index-glaſs. The lever has a contrivance to turn t ſlowly, and a button to fix it. To ſet the glaſes perpendicular to the plane of the inſtrument, here are two ſunk ſcrews, one before and one behind each glaſs: theſe ſcrews paſs through the plate on which the frame is fixed into another plate; ſo that by looſening one and tightening the other of theſe ſcrews, the direction of the frame with its mirror may be altered, and ſet perpendicular to the plane of the inſtrument.

338. There are uſually three *coloured glaſſes*, K, wo of which are tinged red and the other green. They are uſed to prevent the ſolar rays from hurtng the eye at the time of obſervation. Theſe glaſſes are ſet in a frame, which turns on a cenre, ſo that they may be uſed ſeparately or together as the brightneſs of the ſun may require. The green glaſs is particularly uſeful in obſervations of the moon; it may be alſo uſed in obſervations of the ſun, if that object be very faint. In the fore obſervation, theſe glaſſes are fixed as n *fig.* 36. but when the back obſervation is uſed, they are removed to N.

339. Each of *the two* SIGHT VANES H, I, is a perforated piece of braſs, deſigned to direct the ſight parallel to the plane of the quadrant. That which is fixed at I is uſed for the fore, and the other for the back obſervation. The vane I has two holes, one exactly at the height of the ſilvered part of the horizon-glaſs, the other a little higher, to direct the ſight to the middle of the tranſparent part of the mirror.

340. The LIMB of the QUADRANT is divided from right to left into 90 PRIMARY DIVISIONS, which are to be conſidered as degrees, and each degree is ſubdivided into three equal parts, which are therefore of 20 minutes each: the intermediate minutes are obtained by means of the ſcale of diviſions at the end of the index.

341. The VERNIER, or SUBDIVIDING SCALE, contains a ſpace equal to 21 diviſions of the limb, and is divided into 20 equal parts. Hence the difference between a diviſion on the dividing ſcale and a diviſion on the limb is one 20th of a diviſion on the limb, or one minute. The degree and minute pointed out by the dividing ſcale may be eaſily found thus: Obſerve what minute on the dividing ſcale coincides with a diviſion on the limb; this diviſion being added to the degree and part of a degree on the limb, immediately preceding the firſt diviſion on the dividing ſcale, will be the degree and minute required. Thus, ſuppoſe the 14th minute on the dividing ſcale coincided with a diviſion on the limb, and that the preceding diviſion on the limb to *o* on the vernier was 56° 40′; hence the diviſion ſhown by the vernier is 56° 54′. A magnifying glaſs will aſſiſt the obſerver to read off the coinciding diviſions with more accuracy.

342. The ADJUSTMENTS of Hadley's quadrant conſiſt in placing the mirrors perpendicular to the plane of the inſtrument. The fore horizon glaſs muſt be ſet parallel to the ſpeculum, and the planes of the ſpeculum and back horizon-glaſs produced muſt be perpendicular to each other when the index is at *o*.

343. ADJ. I. To ſet the index-glaſs perpendicular to the plane of the quadrant: 1, Set the index towards the middle of the limb, and hold the quadrant ſo that its plane may be nearly parallel to the horizon: then look into the index-glaſs; and if the portion of the limb ſeen by reflection appears in the ſame plane with that ſeen directly, the ſpeculum is perpendicular to the plane of the inſtrument. If they do not appear in the ſame plane, the error is to be rectified by altering the poſition of the ſcrews behind the frame of the glaſs. 2. Another method is performed by the two adjuſting tools (*fig.* 37.) which are two wooden frames, having two lines on each, exactly at the ſame diſtance from the bottom. Place the quadrant in an horizontal poſition on a table; put the index about the middle of the arch; turn back the dark glaſſes; place one of the abovementioned tools near one end of the arch, and the other at the oppoſite end, the ſide with the lines being towards the index-glaſs; then look into the index-glaſs, directing the ſight parallel to the plane of the inſtrument, and one of the tools will be ſeen by direct viſion, and the other by reflection. By moving the index a little, they may be brought exactly together. If the lines coincide, the poſition of the mirror is right; if not, they muſt be made to coincide by altering the ſcrews behind the frame, as before.

344. ADJ. II. To ſet the fore horizon-glaſs perpendicular to the plane of the inſtrument. Set the index to *o*; hold the plane of the quadrant parallel to the horizon; direct the ſight to the horizon, and if the horizons ſeen directly and by reflection are apparently in the ſame ſtraight line, the fore horizon-glaſs is perpendicular to the plane of the inſtrument; if not, one of the horizons will appear higher than the other. Now if the horizon ſeen by reflection is higher than that ſeen directly, releaſe the neareſt ſcrew in the pedeſtal of the glaſs, and ſcrew up that on the farther ſide, till the direct and reflected horizons appear to make one continued ſtraight line. But if the reflected horizon is lower than that ſeen directly, unſcrew the fartheſt, and ſcrew up the neareſt ſcrew till the coincidence of the horizons is perfect, obſerving to leave both ſcrews equally tight, and the fore horizon-glaſs will be perpendicular to the plane of the quadrant.

345. ADJ. III. To ſet the fore horizon-glaſs parallel to the index-glaſs, the index being at *o*. Set *o* on the index exactly to *o* on the limb, and fix it in that poſition by the ſcrew at the under ſide; hold the plane of the quadrant in a vertical poſition, and direct the ſight to a well-defined part of the horizon; then if the horizon ſeen in the ſilvered part coincides with that ſeen through the tranſparent part, the horizon-glaſs is adjuſted; but if the horizons do not coincide, unſcrew the milled ſcrew in the middle of the lever on the other ſide of the quadrant, and turn the nut at the

end of the lever until both horizons coincide, and fix the lever in this poſition by tightening the milled ſcrew. As the poſition of the glaſs is liable to be altered by fixing the lever, it will therefore be neceſſary to re-examine it; and if the horizons do not coincide, it will be neceſſary either to repeat the adjuſtment, or rather to find the error of adjuſtment, or, as it is uſually called, the *index error;* thus: Direct the ſight to the horizon, and move the index until the reflected horizon coincides with that ſeen directly; then the difference between *o* on the limb and *o* on the vernier is the index error; which is additive when the beginning of the vernier is to the right of *o* on the limb, otherwiſe ſubtractive.

346. Adj. IV. To ſet the back horizon-glaſs perpendicular to the plane of the inſtrument. Put the index to *o*; hold the plane of the quadrant parallel to the horizon, and direct the ſight to the horizon through the back ſight vane. Now if the reflected horizon is in the ſame ſtraight line with that ſeen through the tranſparent part, the glaſs is perpendicular to the plane of the inſtrument: if the horizons do not unite, turn the ſunk ſcrews in the pedeſtal of the glaſs until they are apparently in the ſame ſtraight line.

347. Adj. V. To ſet the back horizon-glaſs perpendicular to the plane of the index-glaſs produced, the index being at *o*. Let the index be put as much to the right of *o* as twice the dip of the horizon amounts to; hold the quadrant in a vertical poſition, and apply the eye to the back vane; then if the reflected horizon coincides with that ſeen directly, the glaſs is adjuſted; if they do not coincide, the ſcrew in the middle of the lever on the other ſide of the quadrant muſt be releaſed, and the nut at its extremity turned till both horizons coincide. The reflected horizon will be inverted; *i. e.* the ſea will be apparently uppermoſt, and the ſky lowermoſt. As this method of adjuſtment is eſteemed troubleſome, and is often very difficult to perform at ſea, various contrivances have been propoſed to render this adjuſtment more ſimple. Some of theſe are the following:

348. I. In Mr Dollond's method of adjuſting the back horizon-glaſs, an index is applied to it, by which it may be moved ſo as to be parallel to the index-glaſs, when *o* on the vernier coincides with *o* on the limb. When this is effected, the index of the back horizon-glaſs is to be moved exactly 90° from its former poſition, which is known by means of a divided arch for that purpoſe; and then the plane of the back horizon-glaſs will be perpendicular to the plane of the index-glaſs produced.

349. II. In Mr Blair's method all that is required is to poliſh the lower edge of the index-glaſs, and expoſe it to view. The back horizon-glaſs is adjuſted by means of a reflection from this poliſhed edge in the very ſame method as the fore horizon-glaſs is adjuſted by the common method. To illuſtrate this, let R I H E (*fig.* 39.) repreſent a pencil of rays emitted from the object R, incident on the index-glaſs I, from which it is reflected to the fore horizon-glaſs H, and thence to the eye at E. By this double reflection, an image of the object is formed at *r*. R H E repreſents another pencil from the ſame object R, coming directly through the fore horizon-glaſs to the eye at E; ſo that the doubly reflected image *r* appears coincident with the object R itſelf, ſeen directly. When this coincidence is perfect, and the object R ſo very diſtant as to make the angle I R H inſenſible, the poſition of the ſpeculums I and H will differ inſenſibly from paralleliſm; that is, the quadrant will be adjuſted for the fore obſervation. Now it is from the eaſe and accuracy with which this adjuſtment can at any time be made, that the fore obſervation derives its ſuperiority over the back obſervation. But by grinding the edge of the index-glaſs porpendicular to its reflecting ſurface, and poliſhing it, the back obſervation is rendered capable of an adjuſtment equally eaſy and accurate as the fore horizon-glaſs: for by a pencil of rays emitted from the object S, incident on the reflecting edge of the index-glaſs D, thence reflected to the back horizon-glaſs B, and from that to the eye at *e*, an image will be formed at *s*; which image being made to coincide with the object S itſelf, ſeen directly, aſcertains the poſition of the back horizon-glaſs relative to the index-glaſs, with the ſame preciſion, and in a manner equally direct, as the former operation does that of the fore horizon-glaſs.

350. The method of adjusting the quadrant for the back observation is this. If it is to be done without making uſe of the teleſcope, place the index at *o*, and, applying the eye to the hole in the ſight vane, or tube for directing the ſight, direct it through the back horizon-glaſs to the horizon, if that is the object to be uſed for adjuſting. The two horizons are then to be made to coincide, holding the quadrant firſt in a vertical and then in an horizontal poſition; by which means both adjuſtments will be effected as in the fore obſervation. Beſides the hole in the ſight vane commonly made, there muſt be another nearer to the horizon-glaſs, and ſo placed that an eye directed through it to the centre of the horizon-glaſs ſhall there perceive the image of the poliſhed edge of the index-glaſs. This hole muſt not be made ſmall like the other, but equal to the ordinary ſize of the pupil of the eye, there being on ſome occaſions no light to ſpare. There will be no difficulty in finding the reflected horizon, if the obſerver firſt directs his eye to that part of the horizon-glaſs where he obſerves the image of the poliſhed edge of the index-glaſs, which will appear double. When the direct horizon is made to appear in this ſpace, the reflected one will be ſeen cloſe by it, unleſs the inſtrument wants adjuſtment. In this caſe, a little motion of the back horizon-glaſs backwards and forewards will preſently bring it in view. When the horizon, or any obſcure terreſtrial object, is to be made uſe of for adjuſting by means of the reflecting edge, there is a precaution to be taken, without which the obſerver will ſometimes meet with what will appear an unaccountable difficulty; for if the ſky, or other object behind him, ſhould happen to be pretty bright, he will not be able to diſcern the horizon at all. This ariſes from the image of the object behind him, which is reflected from the ſilvered ſurface of the index-glaſs, appearing to coincide with the horizon; in which caſe, the bright picture of the former,

which is formed in the bottom of the eye, prevents the fainter impreſſion of the latter from being perceived. This will be avoided, either by applying a black ſcreen over the ſilvered ſurface of the index glaſs, or, without being at this trouble, by ſtanding at a door or window, ſo that only the dark objects within can be reflected from the index-glaſs: but if the obſervation is to be made in the open air, a hat, or any ſuch dark obſtacle, held before the ſilvered ſurface of the index-glaſs, will very effectually remove this inconvenience.

351. Some obſervers, inſtead of making the principal adjuſtment, place the ſpeculums parallel, by moving the index without altering the poſition of the horizon-glaſs: and the difference between *o* on the vernier and *o* on the limb is the index error, which muſt be ſubtracted from all angles meaſured by the back obſervation, when *o* on the index is to the right of *o* on the limb, and added when to the left.

352. III. Mr Wright's method of adjuſting the back horizon-glaſs of his Improved Patent Quadrant. *Fig.* 40. is a repreſentation of the quadrant complete in all its parts for uſe. A, is the reflecting ſurface of the index-glaſs, which is made of the uſual length, and $\frac{9}{16}$th of an inch broad. The bottom part is covered in front by the braſs frame, and the reflecting ſurface is $\frac{7}{16}$th on the back. B, the fore horizon-glaſs, placed as uſual: O, the back horizon-glaſs, now placed under the fore ſight vane on the firſt radius of the quadrant I: C, the ſight-vane of the fore horizon-glaſs: D, the ſight-vane of the back horizon-glaſs: E, the coloured glaſſes in a braſs frame, in the proper place for the fore obſervation: F, a hole in the rame to receive the coloured glaſſes when an obſervation is to be taken with the back horizon-glaſs in the common way, by turning the back to he ſun: *G*, a hole in the frame of the fartheſt raſius K, to receive the coloured glaſſes when an obſervation is to be taken by the new method; which s by looking through the lower hole in the ſight-ane of the back horizon-glaſs directly at the ſun n the line of ſight DN; the horizon from behind vill then be reflected from the back of the index-laſs to the horizon-glaſs, and from thence to the ye. (See *fig.* 44.) H, a braſs clamp on the uper end of the index, having a milled ſcrew unerneath, which faſtens the round plate to the idex when required. (See *fig.* 41.) IK, the raduated arch of the quadrant divided into 90 egrees: L, the braſs index which moves over e graduated arch: M, the vernier to ſubdivide e diviſions on the arch into ſingle minutes of a egree.

353. *Fig.* 41. ſhows the upper part of the inex L on a larger ſcale, with part of the braſs ame that faſtens the index-glaſs, and the three ljuſting ſcrews D, to adjuſt its axis vertical to e plane of the quadrant: B, the centre on which e milled plate O moves over the index: The otted line BF is the diſtance it is required to ove: K, the adjuſting ſcrew to ſtop it in its proer place for adjuſting the back obſervation-glaſs: , a piece of braſs faſtened to the index oppoſite the clamp H, to keep the plate O always cloſe the index L.

354. *Fig.* 42. *pl.* CCXLV. repreſents the parallel poſition of the index and horizon-glaſſes after adjuſtment by the ſun: BC, a ray from the ſun incident on the index-glaſs C, and from thence reflected to the fore horizon-glaſs D, and again to the eye at E, in the line DE, where the eye ſees the ſun at A by direct viſion, and the image by reflection in one; the parallel lines AE and BC being ſo near to each other, that no apparent angle can be obſerved in the planes of the index and horizon-glaſs, when adjuſted by a diſtant object.

355. In *fig.* 43. the index-glaſs is removed 45° from the plane of the fore horizon-glaſs, and fixed in its proper place for adjuſting the back horizon-glaſs parallel to its plane, in the ſame manner as the fore horizon-glaſs is adjuſted.

356. In *fig.* 44. the index glaſs (after the adjuſtment of the fore and back horizon glaſſes) is carried forward by the index on the arch 90 degrees, and makes an angle of 45° with the plane of the fore horizon-glaſs, and is at right angles to the plane of the back horizon glaſs. The eye at E now ſees the ſun in the horizon at H, reflected by the index and horizon-glaſſes from the zenith at Z, the image and object being 90 degrees diſtant. The back horizon K is now reflected from the back ſurface of the index-glaſs C to the horizon-glaſs M, and from thence to the eye at D, in a right line with the fore horizon F. In order to make an exact contact of the fore and back horizons at F, the index muſt be advanced beyond the 90th degree on the arch, by a quantity equal to twice the dip of the horizon.

357. The quadrant is adjuſted for the fore obſervation as uſual, having previouſly fixed the index-glaſs in its proper place by the milled ſcrew at H, as repreſented in *fig.* 41.

358. *To adjuſt the* Quadrant *for the* Back Observation, faſten the index to 90° on the limb; looſen the ſcrew H, (*fig.* 41.) and turn the plate O by the milled edge until the end of the adjuſting ſcrew K touch the edge of the clamp M; and by means of a diſtant object obſerve if the glaſſes are then parallel, as at *fig.* 42: if they are, faſten the ſcrew H; if not, with a ſcrew-driver turn the ſcrew K gently to the right or left to make them perfect, and then faſten the ſcrew. Now remove the index back to O on the limb, and the index-glaſs will be parallel to the back horizon-glaſs E. *fig.* 43; If not, make them ſo by turning the adjuſting ſcrew of the glaſs E, the eye being at the upper hole in the ſight vane D, and the ſight directed to the horizon, or any diſtant object in the direction DN (*fig.* 40.) Now the index remaining in this poſition, the index-glaſs is to be returned, to ſtop at the pin E, and it will be parallel to the fore horizon-glaſs as at firſt: then the quadrant will be adjuſted for both methods of obſervation.

359. *To obſerve the* Sun's Altitude *by the* Back Observation, remove the coloured glaſſes to G (*fig.* 40.), and look through the lower hole in the ſight vane D, in the line of direction DN, directly to the ſun, and move the index forward on the arch exactly in the ſame manner as in the fore obſervation: make the contact of the ſun's limb and the back horizon exact, and the degrees and minutes ſhown by the index on the

limb is the ſun's zenith diſtance. It may be obſerved that the horizon will be inverted. If the ſun's lower limb be obſerved, the ſemi-diameter is to be ſubtracted from the zenith diſtance; but if the upper limb is obſerved, the ſemi-diameter is to be added.

360. The obſervation may be made in the uſual manner, by turning the back to the ſun. In this caſe the coloured glaſſes are to be ſhifted to F, and proceed according to the directions formerly given.

361. Use *of* Hadley's Quadrant. The altitude of any object is determined by the poſition of the index on the limb, when by reflection that object appears to be in contact with the horizon. If the object whoſe altitude is to be obſerved be the ſun, and if ſo bright that its image may be ſeen in the tranſparent part of the fore horizon glaſs, the eye is to be applied to the upper hole in the ſight vane; otherwiſe, to the lower hole: and in this caſe, the quadrant is to be held ſo that the ſun may be biſected by the line of ſeparation of the ſilvered and tranſparent parts of the glaſs. The moon is to be kept as nearly as poſſible in the ſame poſition; and the image of the ſtar is to be obſerved in the ſilvered part of the glaſs adjacent to the line of ſeparation of the two parts.

362. There are two different methods of taking obſervations with the quadrant. In the firſt of theſe the face of the obſerver is directed towards that part of the horizon immediately under the ſun, and is therefore called the *fore obſervation*. In the other method, the obſerver's back is to the ſun, and it is hence called the *back obſervation*. This laſt method of obſervation is to be uſed only when the horizon under the ſun is obſcured, or rendered indiſtinct by fog or any other impediment.

363. In taking the ſun's altitude, whether by the fore or back obſervation, the obſerver muſt turn the quadrant about upon the axis of viſion, and at the ſame time turn himſelf about upon his heel, ſo as to keep the ſun always in that part of the horizon-glaſs which is at the ſame diſtance as the eye from the plane of the quadrant. In this way the reflected ſun will deſcribe an arch of a parallel circle round the true ſun, whoſe convex ſide will be downwards in the fore obſervation and upwards in the back; and conſequently, when by moving the index, the loweſt point of the arch in the fore obſervation, or higheſt in the back, is made to touch the horizon, the quadrant will ſtand in a vertical plane, and the altitude above the viſible horizon will be properly obſerved.

364. The reaſon of theſe operations may be thus explained: The image of the ſun being always kept in the axis of viſion, the index will always ſhow on the quadrant the diſtance between the ſun and any object ſeen directly which its image appears to touch; therefore, as long as the index remains unmoved, the image of the ſun will deſcribe an arch everywhere equi-diſtant from the ſun in the heavens, and conſequently a parallel circle about the ſun, as a pole. Such a tranſlation of the ſun's image can only be produced by the quadrant's being turned about upon a line drawn from the eye to the ſun, as an axis. A motion of rotation upon this line may be reſolved into two, one upon the axis of viſion, and the other upon a line on the quadrant perpendicular to the axis of viſion; and conſequently a proper combination of theſe two motions will keep the image of the ſun conſtantly in the axis of viſion, and cauſe both jointly to run over a parallel circle about the ſun in the heavens: but when the quadrant is vertical, a line thereon perpendicular to the axis of viſion becomes a vertical axis; and as a ſmall motion of the quadrant is all that is wanted, it will never differ much in practice from a vertical axis.

365. The obſerver is directed to perform two motions rather than the ſingle one equivalent to them on a line drawn from the eye to the ſun; becauſe we are not capable, while looking towards the horizon, of judging how to turn the quadrant about upon the elevated line going to the ſun as an axis, by any other means than by combining the two motions above mentioned, ſo as to keep the ſun's image always in the proper part of the horizon-glaſs. When the ſun is near the horizon, the line going from the eye to the ſun will not be far removed from the axis of viſion; and conſequently the principal motion of the quadrant will be performed on the axis of viſion, and the part of motion made on the vertical axis will be but ſmall. On the contrary, when the ſun is near the zenith, the line going to the ſun is not far removed from a vertical line, and conſequently the principal motion of the quadrant will be performed on a vertical axis, by the obſerver's turning himſelf about, and the part of the motion made on the axis of viſion will be but ſmall. In intermediate altitudes of the ſun, the motions of the quadrant on the axis of viſion, and on the vertical axis, will be more equally divided.

366. Obſervations taken with the quadrant are liable to errors ariſing from the bending and elaſticity of the index, and the reſiſtance it meets with in turning round its centre: whence the extremity of the index, on being puſhed along the arch will ſenſibly advance before the index glaſs begins to move, and may be ſeen to recoil when the force acting on it is removed. Mr Hadley ſeems to have been apprehenſive that his inſtrument would be liable to errors from this cauſe, and in order to avoid them, gives particular directions that the index be made broad at the end next the centre, and that the centre, or axis itſelf, have as eaſy a motion as is conſiſtent with ſteadineſs; that is, an entire freedom from looſeneſs, or *ſhake* as the workmen term it. By ſtrictly complying with theſe directions the error in queſtion may indeed be greatly diminiſhed; ſo far, perhaps, as to render it nearly inſenſible, where the index is made ſtrong, and the proper medium between the two extremes of a ſhake at the centre on one hand, and too much ſtiffneſs there on the other, is nicely hit: but it cannot be entirely corrected; for to more or leſs of bending the index will always be ſubject; and ſome degree of reſiſtance will remain at the centre, unleſs the friction there could be totally removed, which is impoſſible.

367. Of the reality of the error to which he is liable from this cauſe, the obſerver, if he is pro-

vided with a quadrant furniſhed with a ſcrew for moving the index gradually, may thus ſatisfy himſelf. After finiſhing the obſervation, lay the quadrant on a table, and note the angle; then cautiouſly looſen the ſcrew which faſtens the index, and it will immediately, if the quadrant is not remarkably well conſtructed, be ſeen to ſtart from its former ſituation, more or leſs according to the perfection of the joint and the ſtrength of the index. This ſtarting, which is owing to the ndex recoiling after being releaſed from the con- ined ſtate it was in during the obſervation, will ometimes amount to ſeveral minutes; and its di- ection will be oppoſite to that in which the in- lex was moved by the ſcrew at the time of finiſh- ng the obſervation. But how far it affects the ruth of the obſervation, depends on the manner n which the index was moved in ſetting it to *o*, or adjuſting the inſtrument; or in finiſhing the bſervations neceſſary for finding the index er- or.

368. The eaſieſt and beſt rule to avoid theſe er- ors ſeems to be this: In all obſervations made by adley's quadrant, let the obſerver take notice onſtantly to finiſh his obſervations, by moving e index in the ſame direction which was uſed ſetting it to *o* for adjuſting; or in the obſerva- ons neceſſary for finding the index error. If is rule is obſerved, the error ariſing from the ring of the index will be obviated; for as the dex was bent the ſame way, and in the ſame gree in adjuſting as in obſerving, the truth of e obſervations will not be affected by this nding.

369. *To take* Altitude *by the* Fore Obſer- tion; I. *Of the* Sun. Turn down either of e coloured glaſſes before the horizon glaſs, ac- rding to the brightneſs of the ſun; direct the ht to that part of the horizon which is under e ſun, and move the index until the coloured age of the ſun appears in the horizon glaſs; n give the quadrant a ſlow vibratory motion out the axis of viſion; move the index until the ver or upper limb of the ſun is in contact with horizon, at the loweſt part of the arch de- bed by this motion; and the degrees and mi- es ſhown by the index on the limb will be the tude of the ſun.

70. II. *Of the* Moon. Put the index to *o*, turn vn the green glaſs, place the eye at the lower e in the ſight vane, and obſerve the moon in the ered part of the horizon glaſs; move the index gradually, and follow the moon's reflected image until the enlightened limb is in contact with the horizon, at the lower part of the arch deſcribed by the vibratory motion as before, and the index will ſhow the altitude of the obſerved limb of the moon. If the obſervation is made in the day time, the coloured glaſs is unneceſſary.

371. III. *Of a* Star *or* Planet. The index being put to *o*, direct the ſight to the ſtar through the lower hole to the ſight vane and tranſparent part of the horizon glaſs; move the plane of the quadrant a very little to the left, and the image of the ſtar will be ſeen in the ſilvered part of the glaſs. Move the index, and the image of the ſtar will appear to deſcend; continue moving the index gradually until the ſtar is in contact with the horizon at the loweſt part of the arch deſcribed, and the degrees and minutes ſhown by the index on the limb will be the altitude of the ſtar.

372. *To take* Altitudes *by the* Back Obſervation. I. *Of the* Sun. Put the ſtem of the coloured glaſſes into the perforation between the horizon glaſſes, turn down either according to the brightneſs of the ſun, and hold the quadrant vertically; then direct the ſight through the hole in the back ſight vane, and the tranſparent ſlit in the horizon glaſs to that part of the horizon which is oppoſite to the ſun: now move the index till the ſun is in the ſilvered part of the glaſs, and by giving the quadrant a vibratory motion, the axis of which is that of viſion, the image of the ſun will deſcribe an arch whoſe convex ſide is upwards: bring the limb of the ſun, when in the upper part of this arch, in contact with the horizon; and the index will ſhow the altitude of the other limb of the ſun.

373. II. *Of the* Moon. The altitude of the moon is obſerved in the ſame manner as that of the ſun; with this difference only, that the uſe of the coloured glaſs is unneceſſary, unleſs the moon is very bright; and that the enlightened limb, whether it be the upper or lower, is to be brought in contact with the horizon.

374. III. *Of a* Star *or* Planet. Look directly to the ſtar through the vane and tranſparent ſlit in the horizon glaſs; move the index until the oppoſite horizon, with reſpect to the ſtar, is ſeen in the ſilvered part of the glaſs; and make the contact perfect as formerly. If the altitude of the ſtar is known nearly, the index may be ſet to that altitude, the ſight directed to the oppoſite horizon, and the obſervation made as before.

.) **Navigation, Act of.** See Laws, § 11; Maritime, § 7.

.) **Navigation, Inland**, the method of con- ng commodities from one part of a country to ther by means of rivers, lakes, canals, or arms he ſea, penetrating far into the internal parts. Canal, § 2—9 and Forth, N° 4. The ad- ages of this mode of conveyance, in an exten- and populous country, are ſufficiently obvious, ther we take into account the ſuperior cheap- , facility, or quickneſs with which great quantities of goods can thus be carried from one place to another, or the advantages which accrue to agriculture and other arts, by thus conveying manures, the produce of the ground, or heavy manufactured goods, to and from diſtant quarters; which would be altogether impracticable by a land-carriage, without incurring a much greater expenſe than the commodities could bear. The good effects of inland navigation are particularly evident in the vaſt empire of China, and the Batavian Republic. In both theſe countries, the multitude of canals undoubtedly contributes to the opulence of the inhabitants, both by the more free ſcope they give to trade, and the advantages derived from them to agriculture; not to mention, that by means of the canals themſelves the ground is often meliorated and made capable of producing both corn and paſture, where otherwiſe it would perhaps yield neither, or at leaſt very imperfectly. Theſe countries, however, particularly Holland, are very flat, and thus very much fitted for this kind of navigation: Great Britain and Ireland are leſs ſo, on account of the greater inequality of their ſurface; though in them alſo the making of canals is now become very common, notwithſtanding the immenſe expence with which ſuch undertakings are attended. In a late treatiſe upon this ſubject by Mr Edmund Leach, ſurveyor, the author conſiders the advantages which might accrue to the kingdoms of Britain and Ireland, were their inland navigation improved as much as it might be; and he conſiders both countries as exceedingly proper for improvements of this kind, on account of the number of fine ſtreams of water they contain. "Every county (ſays he) in each kingdom is furniſhed with rivers and ſtreams of water; very few, if any, of which but may be made navigable to within a mile or two of their ſources" by the method he propoſes. The method of making canals hitherto practiſed, is ſo fully deſcribed under the article CANAL § 3, that nothing needs be ſaid upon it in this place. Mr Leach obſerves, that all the artificial inland navigations made in this, as well as in other kingdoms, have been done by beginning them at the foot or mouth of a river, or at the utmoſt extent of the ebb or flow of the tide; proceeding thence upwards, either in the ordinary courſe of the river, by ſinking, widening, and cleanſing it; then with the aſſiſtance of a lock and dam to raiſe the boats or other veſſels to a higher level. This is next to be cut, widened, and cleanſed as before, till we come to a 3d level, when the veſſels are to be raiſed as in the former; proceeding thus, as it were ſtep by ſtep, till we arrive at the extent of the intended navigation. Otherwiſe the navigation is carried on by an artificial ſide-cut or canal near the courſe of the river, raiſed up by locks and dams as before. Theſe methods, however, tho' probably of very great ſervice to the country, are attended with many and conſiderable inconveniencies. 1. Every river or ſtream is the natural receptacle of all the ſprings, rains, and floods, which diſcharge themſelves into it; by which means it ſometimes diſcharges ſuch torrents of water as ſweep every thing away before them. This not only interrupts the navigation for a time, but is often attended with the moſt intolerable expenſe. 2. The original making of the canal with a number of locks and dams, (ſuch as is deſcribed under the article CANAL), muſt alſo be very expenſive. 3. Some rivers run very rapidly in particular places; and if the deſcent of the bed be very great, it will require a number of the locks and dams already mentioned to make ſuch a river navigable, though the navigation ſhould extend but a few miles from the mouth. 4. The paſſing of the locks is always attended with a conſiderable difficulty, beſides the loſs of time and expence.

(3.) **NAVIGATION, INLAND, MR LEACH'S PROPOSED IMPROVEMENTS OF.** To obviate all theſe inconveniences, Mr Leach propoſes to begin and carry on his canal in a manner preciſely the reverſe of that juſt now deſcribed. In his method the canal is to be begun as near the ſource of the river as poſſible; that is, as near as there is a probability of having water in the drieſt ſeaſons ſufficient to fill the canal; of which there can be but little required, as a ſtream ſufficient to turn an ordinary mill muſt be ſufficient to anſwer all the purpoſes of ſuch a canal. Thus the navigation may be carried up much higher than in the ordinary canals with dams and locks. If a canal be made properly, and the ſides and bottom plaſtered with a cement that may be made of the ſame earth and clay ſaved in making the trunk, very little water will be requiſite to keep it full. Mr Leach ſuppoſes that a ſtream ſufficient to turn an ordinary mill will be ſufficient to keep it full, even if the canal ſhould be 20 miles long. To conſtruct a canal of this kind, we muſt make choice of a level as near the head of the river as poſſible; this level muſt be continued for a conſiderable way, ſo that the water may not have the leaſt current, but may abſolutely ſtagnate. Thus the original bed of the river will ſoon be left at a diſtance, and the ſtagnant canal will become higher and higher with reſpect to it, in proportion to the deſcent of the ground or rapidity of the river. Having proceeded this way as far as convenient, the veſſels muſt be let down by a machine (ſee § 5.) into the bed of the original river, or from one elevated canal to another much lower; perhaps 10, 15, or 20 fathoms. By this perfect ſtagnation of the water in the canals, there will be no danger of waſhing off the plaſtering from the ſides and bottom, ſo that the only waſte of water will be by evaporation, and what is required for working the machine above mentioned; which, as it is only required at particular times, when veſſels are to be raiſed or lowered, muſt be very trifling, and cannot bear any proportion to the conſtant ſupply at the head of the canal. To keep the firſt level eaſily, and for a conſiderable way, it will be neceſſary to avoid the many valleys which are to be met with near the original river, by the deſcent of other ſtreams into it. Hence canals conſtructed on the plan recommended by our author muſt run out in ſerpentine windings a conſiderable way into the country, which will augment its length greatly beyond that of the original river; and thus a much greater number of people and larger extent of country will reap the benefit of it, than if it was continued in a ſtraight line. "One inconvenience (ſays our author) attending the old inland navigations, that are carried on in or nigh the original rivers, is their being confined within too ſmall a ſpace of land, and where, for the moſt part, there is the leaſt occaſion either for water to water the land, or for manure to enrich the ſoil; whereas, by beginning a canal near the head of a river, and by continuing it on one common level, if the river have any thing of a deſcent, and runs pretty rapid, the original river and its valley are ſoon left, and the canal is removed up into the ſide of the hill, where there is generally moſt occaſion for manure and water both ; and the further on it is continued, and the more rapid the river runs, the further the navigation s removed from the valley and the original courſe of the river, till it is brought to the place deſigned for the purpoſe of transferring the veſſels down at once by a machine into the original river, the ſea, or nto another canal." Notwithſtanding the advantages which attend this new mode of conſtruction, our author acknowledges that there are ſome caſes n which the old method only can be put in practice.

(4.) **Navigation, Inland, size, form, and expense, of Canals for.** With regard to the ize, form, and expenſe of canals of this kind, Mr Leach gives a computation from one which was ntended to be made in the county of Cornwall, and which was called the *Tamar Canal*. An act of parliament was obtained for this in 1774. A navigable canal was to be made from Bude Haven, n Cornwall, on the Briſtol Channel, to the navigable part of the Tamar; the deſign being to open a communication between the Engliſh and Briſtol channels through the counties of Devon and Cornwall. By the act, it was determined that the canal ſhould not exceed 63 feet in breadth, nor hould the ground be cut more than 39 inches deep below the ſurface, excepting in places where locks or baſons were to be made, or where cranes or other engines were to be erected for particular purpoſes. The breadth allowed (63 feet) was to comprehend the water itſelf, the two towing paths, one on each ſide, and the fences beyond them. The breadth of the canal itſelf was to be 21 feet at the ſurface and 12 at bottom; the depth on the under ſide, 39 inches; the towing paths 12 feet broad each; and beyond theſe a hedge or rail ſix feet on each ſide from the paths. There were to be drains as uſual in canals; one on the under ſide or carrying off the ſuperfluous water from the canal; the other on the upper ſide for carrying off the water which might accidentally fall into t in rains or by ſprings in the higher grounds. Thus the whole would not exceed the breadth propoſed by act of parliament; while the canal tſelf would be ſufficiently large for every neceſſary purpoſe. Mr Leach computes, that on this canal wo boats carrying 10 tons each, might very eaſily paſs: and he recommends this as the proper ſize of canals in other parts of the kingdom. Canals of this kind, he obſerves, will, for the moſt part be made in the ſide of an hill or riſing ground; whence the greateſt part of the earth dug out of it will be thrown upon the under ſide. Here it will elevate the ground ſufficiently to form a towing path, together with an elevated ſpace whereon to plant the hedge or fence. On the higher ſide, 12 feet of the ground muſt be cut down to within 18 inches of the ſurface of the water; and the earth and ſtones dug out in making this path will make the fence on the outſide for keeping off the cattle. As by the act of parliament, however, there is a greater breadth allowed in ſome places for making locks or baſons, our author calculates the whole breadth of the canal at 66 feet; and according to this breadth he makes his computations. I. The firſt and principal expenſe is the digging of the trunk of the canal; but this muſt vary ſo much according to the nature of the ground, that no certain eſtimate of the expenſe can be made. Sometimes the ground may be ſoft, and eaſily cut, ſometimes hard and rocky, ſometimes marſhy and boggy, &c. There muſt alſo be a very conſiderable difference in the expenſe of cutting the canal, according as the ground on one ſide of it is more or leſs elevated. Mr Leach, after making the proper calculations, ſuppoſes that in every perch of a canal of the kind under conſideration there muſt be removed 40⅕ cubical yards, or 1085 cubical feet of earth. Agreements with the workmen are commonly made by the cubic yard. It is rare that a cubic yard can be removed for leſs than 2d. " nor (ſays our author) will any ſort of ground require more than 9d. except in paſſing through a rock, which will not often happen, unleſs where, by the ſituation of the land through which the canal may paſs, it ſhould require to be cut more than four feet under the ſurface, as it may ſometimes happen in cutting through a hill or neck of land, whereby the courſe of the canal may be ſhortened. According to this eſtimate, Mr Leach has formed a table of the expenſe of making canals from 2d. the cubic yard to 9d. The ſmalleſt expenſe of theſe per mile is L.107 : 11 : 1¼; the greateſt L.483 : 19 : 9. Sometimes, however, the expenſe may be even greater; ſo that the mile may coſt L.600, or near it; but this muſt be accounted an extraordinary expenſe, and not often to be expected. In digging the trunk of the canal, care muſt be taken to preſerve all the ſand, ſtones, and gravel, for the purpoſe of making drains or gutters and the towing paths; alſo for the making of a wall, the outſide face of which is to be 21 feet diſtant from the edge of the canal. The deſign of this is to prevent the earth and rubbiſh from being thrown to too great a diſtance from the ſide of the canal; and likewiſe for the purpoſe of raiſing a bank on the lower ſide about 16 or 18 inches above the ſurface of the water in the canal, when it is full up to the drains. On the top of this bank the towing path is to be made 12 feet wide on that ſide of the canal; and if this wall ſhould be raiſed four feet above the ſurface of the towing path, it would be a fence to keep the cattle off from that ſide. In making the towing path on the higher ſide, the ſurface of the land muſt be ſunk to within 16 or 18 inches of the ſurface of the water in the canal when full; and the turf, earth, ſtones, &c. taken from thence in making the towing path on that ſide, will make the other fence of the canal. II. Drains or gutters muſt be made under the towing paths, on both ſides of the canal. On the upper ſide they muſt be made through the hedge or fence, at all convenient places for admitting ſprings and rivulets, as well as rain water into the canal. On the higher ſide, theſe ſhould be about 132 feet diſtance from one another, excluſive of thoſe for the admiſſion of ſprings. On the lower ſide, it is neceſſary to have drains at the diſtance of 66 feet from each other; which will be 80 drains per mile. Theſe may be conſtructed for 2s. 6d. each, which amounts to L.10 per mile. On the higher ſide they will coſt about four ſhillings per drain; and at the diſtance of 132 feet between each drain, the expenſe will be L.8 per mile. In making the drains on the lower ſide, great care muſt be taken to have them truly level, and parallel to the horizon; the bottom part of the drain being exactly 39 inches perpendicular above the bottom of the canal; as on the true placing of theſe drains, and the true level of the bottom of the canal, entirely depends the regularity of the deepneſs of the water.' III. The value of the ground through which the canal is to paſs muſt alſo be conſidered. From the obſervations and memorandums which our author took in the year 1774, concerning the ground through which the Tamar canal was to paſs, he concluded, that one 8th part of the land through which the tract paſſed was worth 40s. per acre; another 28s.; a third 8th part, 10s.; and all the reſt not worth more than five; and a great deal of it not more than two; the average of the whole being 15s. an acre. "Then (ſays he), if the good, indifferent, and bad land be worth on an average, 15s. an acre, and as 30 years value is a capital price for lands, it will, at that rate, amount to 22l. 10s. per acre. The ſtipulated breadth of the canal, with the towing paths and hedges, being, as already ſaid, 66 feet, which is exactly a gunter's chain; then, 10 ſuch chains in length and one in breadth form exactly a ſtatute acre of land; and ten chains in length are a furlong; ſo that every mile of canal will thus take up eight acres of land, which, at 22l. 10s. per acre, amount to 180l. per mile. IV. Bridges are likewiſe a conſiderable article of expenſe in the making of canals. Mr Leach ſuppoſes that there may be one common road bridge and two ſwivel bridges required per mile; the former may be erected for 60l. and the latter for 30l. each; ſo that the expenſe of all together will amount to 20l. per mile. V. As in ſome particular places, on account of ſhort turns, and where docks and baſons and landing places are to be made, a greater wideneſs will be required, our author allows half an acre more land for every furlong on this account; which brings an additional expenſe of 90l. per mile. VI. It will always be neceſſary to have ſluices for emptying the canal; each of which will coſt 20l. Mr Leach allows a ſluice and ſtop-gate for every mile; and as theſe coſt 20l. each, we have thus a farther expenſe of 40l. per mile. VII. The wall on the lower ſide againſt the bank of earth and towing path may be built for three ſhillings per perch; and as every mile contains 320 perches, the expenſe of the wall will be 48l. per mile. VIII. Our author calculates the towing path on the lower ſide at the ſame price; ſo that it alſo makes an addition of 48l. per mile; but as he eſtimates the higher towing path and hedge at 8s. per mile, this will amount to 128l. per mile. Thus, according to our author's calculation, the whole expenſe of making a canal with its neceſſary appendages will amount to L.944 : 13 : 4½ per mile; and by the calculation of another engineer, the particulars of which he alſo enumerates, it would not exceed 1032l. 13s. 4½d. This he thinks a moderate expenſe; but an objection naturally occurs from the great length to which ſuch canals muſt neceſſarily run; a remarkable inſtance of which he gives in the propoſed Tamar canal; where, though the diſtance betwixt Bude Haven and the navigable part of the river Tamar is no more than 28 miles in a ſtraight line, the length of the canal would not have been leſs than 80 miles. This length, however, according to our author, "ought not to be an object of diſcouragement, but on the contrary an inducement and an encouragement to promote the extending of it as much as poſſible into the country, as it will bring a market to every man's door that it draws nigh in its paſſage, and be a means to improve a greater quantity of uncultivated lands; and the navigation will be thereby much more extenſive, and a much larger number of inhabitants will reap the advantages thereof, than if it had been carried on upon the original river."

(5.) NAVIGATION, INLAND, VARIOUS MACHINES FOR IMPROVING. In the method of conſtructing canals above mentioned, there will at certain intervals be places where the veſſels muſt be raiſed and lowered by mechanical powers, inſtead of the dams and locks made uſe of in other canals. Theſe machines are compounded of an inclined plane and wheel in axis. The inclined plane is a parallelogram whoſe length reaches from the end of one canal to the beginning of another, or to the ſea or navigable river, to which the veſſel is next to be conveyed; the breadth ought to be 22½ feet. It may be made of good oak or deal plank, and ſufficiently ſtrong to bear the weight to be laid upon it; and it muſt be very ſtrongly ſupported by beams of oak or other wood. It ought to be divided in the middle by a ledge or rib of 12 inches ſquare, the ſide ribs being 9 by 12 inches. The elevation muſt depend upon particular circumſtances. *Fig.* 1. *Plate* CCXLV shows the inclined part of the machine; AB being the wooden part juſt deſcribed, placed between the ſide of the hill W and the navigable river I. According to the dimenſions already given, the paths A and B on which the veſſels move are exactly ten feet wide. G repreſents the canal, brought perhaps from the diſtance of ſeveral miles to the top of the precipice WW. At the end of the canal, and quite acroſs from R to R, muſt be built a very ſtrong wall; in which are two ſluices with flood-gates at K and L, to let out the water occaſionally. Between the head of the plane AB, and the end of the canal G, is a horizontal platform divided into two parts, as is repreſented in the figure by the letters HI. At the end of the canal are ſix rollers M and N, of uſe in carrying the boats and lighters in and out of the canal. Near the end of the canal, at S and T, are two other ſluices, with their flood-gates, for letting out a quantity of fluid to drive the other part of the machine. O and P repreſent the two ends of the towing paths, one on each ſide of the canal. *Fig.* 2. *Pl.* 245, ſhows the vehicle by which the lighters are conveyed down the inclined plane, by the two paths A and B, *fig.* 1. AA (*fig.* 2.) repreſents part of the inclined plane, B the vehicle in the poſition in which it rolls up and down the two paths. C is the body of the vehicle, which is made hollow, to contain a quantity of water occaſionally uſed as a counterbalance for its correſponding vehicle. DDD are three rollers between the bottom of the vehicle and the plane, for the purpoſe of rolling the boats up and down. HHH are ſix rollers; four on the horizontal part of the vehicle on which the boat E is to reſt;

it,

Its paſſage up and down the plane; the other two are in a moveable part, which is faſtened to the body of the vehicle with a pair of very ſtrong hinges; and in the paſſage of the vehicle up and down the plane it turns up between the head of the boat and the plane, preventing the former from rubbing againſt the plane. When the vehicle gets up to the top, this moveable part falls down on the platform marked HI, becoming parallel with the horizontal part of the vehicle; after which it ſerves as a launch and paſſage to place the boat upon the rollers MN (*fig.* 1.) at the end of the canal. This paſſage part of the vehicle, together with the three rollers at the end of the canal, is likewiſe of great uſe in towing a boat out of the canal, in order to place it on the horizontal part. At the bottom of the cavity of the vehicle is a large hole F, with a valve opening inwardly. Through this hole the water enters when the vehicle ſinks into the navigable river F, for the purpoſe of receiving a boat on the top or horizontal part of the vehicle, till it is quite full; and will then ſink entirely under water, while the boat is towed in on the horizontal part. A ſmall rope K is faſtened to the valve, on purpoſe to lift it up, and to keep it ſo while the vehicle and boat are aſcending up the plane out of the canal, that ſo the water may diſcharge itſelf till as much as is neceſſary be got out; or till t becomes an equal balance for the correſponding vehicle and its contents, which are deſcending by he other path. Hence we ſee, that every machine muſt have two of theſe vehicles furniſhed with rollers, and ſo conſtructed that one may be s nearly as poſſible a counterbalance to the other. As it is neceſſary that the vehicles ſhould e water tight, the inſides of them muſt be aulked very tight; and they ſhould be capacious nough to hold as much water as will balance the argeſt boat with its contents. Every veſſel will e balanced by as many cubic feet of water as it diſplaces by being put into the water when loaded. The quantity may eaſily be known, by oberving how far the boat ſinks in the water, and alculating the bulk of the part immerſed. The achine which puts the vehicles in motion, may ither be conſtructed with an under-ſhot or breaſt-water-wheel; by an over-ſhot water-wheel; or y two walking wheels, for men to walk in as in ranes, &c. *Fig.* 3. ſhows a front view of the nder-ſhot water-wheel movement; where A is he end of the axis or cylinder of the cog or ſpur-heel; the diameter of which axis is four feet, nd its length not leſs than 22 feet, as it muſt be xtended quite acroſs the canal from one ſide to e other, and placed on the top of very ſtrong pporters on each ſide of the canal, about ſeven et above the ſurface of the water, as the loaded oat is to paſs backwards and forwards under the ylinder, and at a convenient diſtance from the all RR (*fig.* 1.), and placed between the two uices S and T; on the end of which cylinder is e cog-wheel B (*fig.* 3.) The wheel B is ſupoſed to be 20 feet in diameter, having on its edge o cogs; and underneath the cog-wheel is the eaſt-water one C, 24 feet in diameter from the p of one Aller-board to the tip of its oppoſite. n the end of the axis of the water-wheel D is a trundle 2½ feet in diameter, with 15 rounds or ſtaves contained therein. This muſt be placed between the two ſluices S and T, to let the water out of the canal; which, falling on the float-boards, will turn the wheel round from the right hand towards the left, when the ſluice on the left hand of the wheel is opened; but the contrary way when that on the right is opened.—The water falling upon the boards paſſes along with the wheel in the circular cavity EGF, and is diſcharged at G, whatever way the wheel may turn. To the axis or cylinder of this machine, which muſt always be horizontal, are fixed two pair of ſtrong ropes; the ends of each pair faſtened to the upper part of the cylinder; it being neceſſary that they ſhould act in contrary directions. Each muſt extend the whole length of the plane, and their ſtrength muſt be proportioned to the weight neceſſary to be ſuſtained. The two vehicles already mentioned are faſtened to the other ends of the ropes; ſo that one pair of the ropes are wound up by the cylinder turning one way, and the other by its turning the contrary way Thus, when one of the vehicles is at the upper part of the path A, *fig.* 1. ready to diſcharge its boat and cargo into the upper canal, the other boat will be at the foot of the path B, all under water in the lower canal, and ready for the reception of a boat to be towed in on the horizontal part of it; ſo that, as one vehicle rolls up on one ſide of the plane, the other will roll down on the other ſide, and *vice verſa*. *Fig.* 4. ſhews the movement by means of an over-ſhot water-wheel. It conſiſts of a water-wheel C, and two ſpur or cog wheels A and B. The water-wheel is 18 feet in diameter, and has two rows of buckets placed contrariwiſe to one another, that it may turn round in contrary directions, according as the one or the other ſluice, S or T, is opened. On its axis F is a trundle of three feet diameter, having 18 rounds or ſtaves which fall into the cogs of the ſecond ſpur-wheel B, cauſing it to turn round in a direction contrary to that of the water-wheel. This ſecond wheel is likewiſe 18 feet in diameter, with a trundle of three feet, having 18 rounds or ſtaves.—The diameter of the upper ſpur-wheel A is alſo 18 feet, but the diameter of its axis is ſix feet. On the edge of the wheel are 108 cogs. Theſe fall in between the ſtaves of the axis of the other ſpur-wheel; and thus the third wheel turns round the ſame way with the water-wheel C. The cylinder of this upper ſpur-wheel muſt be placed acroſs the canal betwixt the two ſluices, on very ſtrong ſupporters, as explained in the former movement, and the two pair of ropes in the ſame manner. The movement of the walking-wheel is ſhown (*fig.* 5. *pl.* CCXLV.) A 1 and A 2 are two wheels for men to walk in, each of them 24 feet in diameter. B 1 and B 2 are the axes or cylinders of the two wheels, of equal lengths; viz. eleven feet each, and four in diameter.—And one end of each of the two cylinders C 1 and C 2, is a wheel of the ſame diameter with the cylinder. On the edges of theſe wheels are teeth of an equal number in each wheel; and as the teeth of the wheels mutually fall into each other, the revolutions of both muſt be performed in the ſame time. By this contrivance alſo the cylinders will turn different ways; and the ropes on the two different cylinders will conſtantly one pair be wound up, and the other wound down, by the natural moving of the machine. DDD is the frame that ſupports the whole, which muſt be made very firm and ſecure. Let us now ſuppoſe, that there is a boat in the upper canal to be brought down, but none to go up, for a balance. In this caſe, as one of the vehicles muſt be at the top to receive the boat, the other will be at the bottom to take in water. Let then any of the movements juſt deſcribed be ſet to work, and it is plain, that as the upper vehicle with its boat deſcends, the under vehicle will aſcend with the water; the valve being in the mean time lifted up till a ſufficient quantity of water has flowed out, to make the one nearly a counterbalance to the other; ſo that the veſſel may ſlide down gently and without any violence. If it happens that a boat is to go up while none is to come down, one of the vehicles being at the foot of the plane under water, and in readineſs to have the boat towed upon its horizontal part, one of the ſluices at K or L is to be opened, and a quantity of water let into the ciſtern of the upper vehicle ſufficient to counterbalance the boat with its contents which is to aſcend. This being done, the machine is ſet to work, the valve of the under vehicle kept open till the water is all diſcharged; and then the boat will roll up to the top of the plane. From this deſcription of the canal and machinery for raiſing and lowering the veſſels, the reader will underſtand the principles on which it depends. The difference of time in which veſſels may be raiſed or lowered by the machinery, in compariſon with what can be done in the common way by dams and locks, muſt give a very favourable idea of the new method. According to Mr Leach's computations, a boat with its cargo weighing 10 ton might be raiſed by the walking-machine in 12 or 14 minutes, by the underſhot-wheel in 15 minutes, and by the overſhot-wheel in 30 minutes; and that through a ſpace of no leſs than 30 fathoms meaſured on the inclined plane, or 114 feet perpendicular.

(6.) NAVIGATION OF THE ANCIENTS. See PHOENICIA and TRADE.

(7) NAVIGATION, SUBMARINE, a ſpecies of Naval Tactics, invented during the American war, of which Dr Jedidiah Morſe gives the following account in his *American Geography*, Vol. I. p. 406. Boſton Edit. 1793. "Early in the war (ſays the Dr) Mr David Buſhnel, of Saybrook, invented a machine for *ſub-marine navigation*, altogether different from any thing hitherto invented by the art of man. This machine was ſo conſtructed, that it could be rowed horizontally, at any given depth, under water, and could be raiſed and depreſſed at pleaſure. To this machine, called the *American Turtle*, was attached a magazine of powder, which was intended to be faſtened under the bottom of a ſhip, with a driving ſcrew, in ſuch a way, as that the ſame ſtroke which diſengaged it from the machine, ſhould put the internal clock-work in motion. This being done, the ordinary operation of a gun-lock, at the diſtance of half an hour, or any determinate time, would cauſe the powder to explode, and leave the effects to the common laws of nature. The ſimplicity, yet combination diſcovered in the mechaniſm of this wonderful machine, have been acknowledged by thoſe ſkilled in phyſics, and particularly hydraulics, to be not leſs ingenious than novel. Mr Buſhnel invented ſeveral other curious machines, for the annoyance of the Britiſh ſhipping, but from accidents, not militating againſt the philoſophical principles on which their ſucceſs depended, they but partially ſucceeded. He deſtroyed a veſſel in the charge of Commodore Symmonds. One of his kegs also demoliſhed a veſſel near Long Iſland there. About Chriſtmas 1777, he committed to the Delaware river a number of kegs deſtined to fall in among the Britiſh fleet at Philadelphia; but this ſquadron of kegs, having been ſeparated and retarded by the ice, demoliſhed but a ſingle boat. This cataſtrophe, however, produced an alarm, unprecedented in its nature and degree; which has been happily deſcribed by the late Honourable Francis Hopkinſon, in a ſong, entitled *The Battle of the Kegs.*"

* NAVIGATOR. *n. ſ.* [*navigateur*, Fr. from *navigate.*] Sailor; ſeamen; traveller by water.—By the ſounding of *navigators*, that ſea is not 360 feet deep. *Brerewood.*—The rules of *navigators* muſt often fail. *Brown.*—The contrivance may ſeem difficult, becauſe the ſubmarine *navigators* will want winds, tides, and the ſight of the heavens. *Wilkins.*—This terreſtrial globe, which before was only a globe in ſpeculation, has ſince been ſurrounded by the boldneſs of many *navigators. Temple.*

NAVIGATOR'S ISLANDS, a cluſter of iſlands in the S. Pacific Ocean. The natives are ſtrong, handſome, tall, and well-proportioned; ſcarce one of them under ſix feet high; their women are delicately beautiful, their canoes and houſes well built, and their internal police better than any of the other iſles in the South Sea. Yet in one of theſe iſlands (ſee MACUNA) M. de Langle, Captain of the Aſtrolabe, under M. de La Peyrouſe, with eight officers and five ſailors, were maſſacred by the natives. Theſe iſlands are ſurrounded by a coral reef, but boats can land with ſafety. Lon. 169. 0. W. Lat. 14. 19. S.

NAVIGLIO, and NAVIGLIO, GRANDE, } two branches of a navigable canal, in Italy, department of Olona, and diſtrict, late duchy of Milan; running from the Teſſino, below Seſto, the latter to Milan, and the former to Pavia, where they re-unite, and run into the Teſſino again.

NAUL, a town of Ireland, in Dublin county.

* NAULAGE. *n. ſ.* [*naulum*, Latin.] The freight of paſſengers in a ſhip.

NAULOCHUS, in ancient geography: 1. A town of the Locrians: 2. A town of Sicily, near Pelorum: 3. A town of Thrace, on the Euxine Sea.

NAULUM, a piece of money put into the mouth of a perſon deceaſed among the Romans, to enable him to pay Charon the ferryman for his paſſage. It was to be of the current coin of the reigning emperor; from this money then the time of the perſon's death may be known. The fare of poor men was a farthing, but the rich in [illegible] were very liberal to the old tar Charon, as appears from the number of coins often found in the neighbourhood of Rome on opening the graves of great men. Charon was looked upon as a very moroſe and obſtinate old fellow, who would not carry over any man without his fare: and hence the proverbial uſe of that verſe in Juvenal,

Furor eſt poſt omnia perdere naulum.

A ſimilar cuſtom took place among the Greeks; with whom the money put into the mouth of the deceaſed was called Δανακη.

(1.) NAUMACHIA, in antiquity, a ſhow or ſpectacle among the ancient Romans, repreſenting ſea-fight. Theſe mock ſea-fights are ſuppoſed to have originated at the time of the firſt Punic war, when the Romans firſt inſtructed their men in the knowledge of naval affairs. Afterwards they were intended to entertain the populace, as well as to improve the ſeamen. They were often, like other ſhows, exhibited at the expenſe of individuals, to increaſe their popularity. In theſe ſpectacles they ſometimes ſtrove to excel each other in ſwiftneſs; and ſometimes engaged in a warlike manner. The Naumachiæ of Claudius were a moſt ſavage diverſion. The combatants uſed to deſtroy each other to amuſe a tyrant and cruel mob. As they paſſed before him they uſed this melancholy greeting, "*Ave Imperator, morituri te ſalutant.*" The emperor replied, "*Avete vos.*" This they underſtood as an anſwer of kindneſs, and a grant of their lives; but they ſoon diſcovered that it proceeded from wanton cruelty, and barbarous inſenſibility. In the time of Domitian, ſuch a vaſt number of veſſels engaged as would have nearly formed two regular fleets for a real fight, and the channel of water was equal in magnitude to a natural river. Heliogabalus is reported to have filled the channel where the veſſels were to ride with wine inſtead of water. Tritons and ſea monſters were frequently exhibited during the engagement. Suetonius and Dio Caſſius inform us, that at one of theſe ſea fights of Domitian, a violent ſhower fell; the emperor, however, continued till the end of the engagement, often changing his clothes, nor would he ſuffer any one to depart; and as the rain continued for ſeveral hours, many were ſeized with diſtempers, of which ſome died. Suet. cap. 4. Dio, lib. lxvii.

(2.) NAUMACHIÆ were alſo places fitted up for theſe ſhows, a ſort of circuſes or amphitheatres, with ſeats and porticos, &c. There were ſeveral them at Rome; three built by Auguſtus, one Claudius, another by Domitian, and another Nero; which ſerved for the reſerve of his mels. Claudius uſed the lake Fucinus as a Naumachia.

* NAUMACHY. *n. ſ.* [*naumachie*, Fr. *naumachia*, Lat.] a mock ſea fight.

NAUMBERG, a town of Germany in the circle of the Lower Rhine, on the Eder; 14 miles SW. of Caſſel, and 36 SW. of Gottingen. Lon. 36. E. Ferro. Lat. 51. 2. N.

(1.) NAUMBURG, a town of Germany, in the circle of Upper Saxony, capital of the county of Saxe-Naumburg, ſeated on the Sala. Lon. 11, E. Lat. 51. 12. N.

(2, 3.) NAUMBURG, two towns of Sileſia, 1. in Sagan, 9 miles N. of Sagan: 2. in Tauer, 7 miles S. W. of Buntzlau.

NAUPACTUS, or } (in ancient geography), a
NAUPACTUM, } city of Ætolia, at the mouth of the Evenus. The name is derived from ναυς and πηγνυμι, becauſe it was there that the Heraclidæ built the firſt ſhip which carried them to Peloponneſus. It firſt belonged to the Locri Ozolæ, and afterwards fell into the hands of the Athenians, who gave it to the MESSENIANS, who had been driven from Peloponneſus by the Lacedemonians. It became the property of the Lacedemonians after the battle of Ægoſpotamos, and it was reſtored to the Locri. Philip II. of Macedonia afterwards took it, and gave it to the Ætolians; from which circumſtance it has generally been called one of the chief cities of their country. There was on the ſhore a temple of Neptune, and near it a cave filled with offerings, dedicated to Venus, where widows reſorted to requeſt new huſbands of the goddeſs. (*Pauſan.* lib. 10. p. 898). Lon. 22. 20. E. Lat. 38. 0. N.

NAUPLIA, in ancient geography, a maritime city of Peloponneſus. It was the naval ſtation of the Argives. The fountain Canathos was near it.

NAUPLIADES, a patronymic of PALAMEDES, the ſon of NAUPLIUS.

(1.) NAUPLIUS, a ſon of Neptune and Amymone, a native of Argos, who went to Colchis with Jaſon in the Argo. He was remarkable for his knowledge of ſea affairs and of aſtronomy. He built the town of NAUPLIA, and ſold Auge daughter of Aleus to king Teuthras, to ſcreen her from her father's reſentment.

(2.) NAUPLIUS in fabulous hiſtory, king of Eubœa; was the ſon of Clitonas, and grandſon of Nauplius the Argonaut. He was the father of the famous Palamedes, who was ſo unjuſtly ſacrificed to the artifice and reſentment of Ulyſſes by the Greeks at the Trojan war. (See PALAMEDES). To revenge the injuſtice of the Grecian princes, Nauplius endeavoured to debauch their wives, and ruin their characters. When the Greeks returned from the Trojan war, Nauplius was pleaſed to ſee them diſtreſſed in a ſtorm on the coaſts of Eubœa: and to make their diſaſter ſtill more univerſal, he lighted fires on ſuch places as were ſurrounded with the moſt dangerous rocks, that the fleet might be ſhipwrecked upon the coaſt. This had the deſired effect; but Nauplius was ſo diſappointed when he ſaw Ulyſſes and Diomedes eſcape from the general diſtreſs, that he threw himſelf into the ſea. Some mythologiſts confound theſe two.

NAUPORTUM, or } a town on a cognomi-
(1.) NAUPORTUS, } nal river (N° 2.) towards its ſource, in Pannonia Superior. The reaſon of the name, according to Pliny, is, that the ſhip Argo, after coming up the Danube, the Save, and the Laubach, was thence carried on mens ſhoulders over the Alps into the Adriatic. It was built by a colony of the TAURISCI, a people on the confines of Noricum; now called *Laubach.* See LAUBACH, (No. 2.)

(2.) NAUPORTUS a river which riſes in the Alps, near Longaticum, ſix miles from Nauportum now called *Laubach.* See LAUBACH.

NAUSCOPY, *n. ſ.* the art of diſcovering the approach of ſhips or the neighbourhood of land at a conſiderable diſtance. This pretended art was invented by one M. Bottineau, employed in the King and Company's ſervice in the iſland of France, from 1782 to 1784; and the account of it is given by the inventor as follows:—"This knowledge is not derived either from the undulation of the waves, or from the ſubtility of ſight, nor from any particular ſenſation; but merely from obſervation of the *horizon*, which diſcovers ſigns indicating the proximity of ſhips or of land. On the *approximation* of a ſhip towards the land, or towards another ſhip, there appears in the atmoſphere a *meteor* of a particular nature, viſible to every one without any *painful attention*. It is not by any kind of accident that this meteor appears under theſe circumſtances: on the contrary, it is the neceſſary reſult of the approximation of one veſſel towards another, or towards the land. The exiſtence of the *meteor*, and the knowledge of its different modifications, are what conſtitute the certainty and the preciſion of my informations. If I am aſked, how it is poſſible that the approach of a ſhip towards land ſhould give birth to any *meteor* whatſoever in the atmoſphere, and what connection there can be between two objects at ſuch a diſtance from each other? I reply, that I am not obliged to give an account of the *hows* and the *wherefores*; that it is ſufficient for me to have diſcovered the fact, without being obliged to account for its principle." The writer concludes, by deſiring to be called on for experimental proofs, and by promiſing a complete treatiſe of Nauſcopy with maps, plates, &c. This complete treatiſe, as far as we know has never been publiſhed, nor do we expect ever to ſee ſuch a treatiſe on the ſubject as will ſatisfy the minds of thoſe who are perſuaded that every effect muſt have an adequate cauſe. The adminiſtrators of the iſland who gave to M. Bottineau what he calls a *report*, containing the moſt authentic and moſt explicit teſtimony of the reality of the diſcovery, ſeem to be of our opinion; and yet they ſpeak of this diſcovery with doubt, and with a degree of reſpect to which we think it can lay no claim. Their report is in the form of a letter directed to the *Marechal de Caſtries*: dated, "*Port Louis, Iſland of France, 18th February*, 1784." The following are the moſt important paſſages in it:—"This diſcovery is the art of announcing the preſence of one or ſeveral ſhips, at 100, 150, and as far as 200 leagues diſtance. This is by no means the reſult of his ſtudies, nor the fortunate application of the principles of any particular ſcience; his ſcience is in his eyes only, and he can have no other: what we call *penetration* and *genius* cannot make up to him what he is deficient in from education. He perceives (as he ſays) in nature, ſome ſigns which indicate to him the preſence of the veſſels, as we know that there is a fire in a place when we perceive the ſmoke which comes from it. This is the compariſon which he makes uſe of to thoſe who have converſed with him about his art: this (though he has kept his ſecret to himſelf) is the plaineſt thing he has ſaid, in order to make it be underſtood that he hath not made this diſcovery by the knowledge of any art or ſcience, which had been the object of his application, or of his former ſtudies. It is according to him the effect of chance; he hath taken nature in the act, and hath diſcovered her ſecret; ſo that his ſcience, or rather the firſt elements of it, hath not coſt him the leaſt trouble; but the thing which hath coſt him a great deal of labour, and which may be really called his own, is the art of judging of the exact diſtance. According to him, the ſigns very clearly indicate the preſence of ſhips. It is at leaſt 15 years ſince he firſt foretold here the arrival of ſhips. At firſt this was regarded only as a frolic. Wagers were laid on both ſides. He often loſt, becauſe the ſhips did not arrive at the time preſcribed by him. From thence came his application to find out the cauſe of theſe miſtakes; and the perfection of his art is the reſult of this application. Since the war, his informations have greatly increaſed, and probably were ſufficiently exact to excite the attention of the public. The noiſe of them reached us with the degree of enthuſiaſm which is always excited by the marvellous. He himſelf ſpoke of the reality of his ſcience with the tone of a man convinced. We required that he ſhould produce ſome proofs; in conſequence, he hath regularly ſent us, [illegible] months, the informations which he thought he might venture to ſend us; and the reſult is, that ſeveral of the ſhips he announced are arrived at the time he foretold, after ſeveral days of information. Others have come later than was expected, and ſome have not appeared at all. With regard to ſome of theſe, it hath been aſcertained that their delay had been occaſioned by calms or by currents. M. Bottineau is perſuaded, that thoſe which never appeared were foreign veſſels which went on; and accordingly we have learned, that ſome Engliſh ſhips were arrived in India, which might perhaps have been in ſight of the iſland at the time indicated. What we can aſcertain is, that in general it appears that M. Bottineau hath made juſt obſervations; whether owing to chance or to his abilities. It is however certain, that the fact is ſo extraordinary, under whatever light it is conſidered, that we have not thought ourſelves able either to affirm or deny it; and we have waited the Sieur Bottineau to compel us to take one or the other ſide of the queſtion, by truſting his ſecret to ſome truſty and able perſon.—But this he hath refuſed, being probably afraid that he ſhould not acquire by the diſcovery all the benefit which he imagines he may reap from it." Signed "*Le Viſc. de Souillac, Chevreau.*"

NAUSEA, or SICKNESS; a retching or propenſity and endeavour to vomit, ariſing from ſomething which irritates the ſtomach. See MEDICINE *Index*.

(1.) * *To* **NAUSEATE**. *v. a.* [from *nauſea*, Lat.] 1. To loath; to reject with diſguſt.—While we ſingle out ſeveral diſhes, and reject others, the ſelection ſeems arbitrary; for many are cry'd up in one age, which are decryed and *nauſeated* in another. *Brown.*

Old age, with ſilent pace, comes creeping on,
Nauſeates the praiſe which in her youth ſhe won. *Dryden.*

—The patient *nauſeates* and loaths wholeſome foods. *Black.*—

Thoſe heads, as ſtomachs, are not ſure the beſt,
Which *nauſeate* all, and nothing can digeſt. *Pope.*

4. To ſtrike with diſguſt.—He let go his hold and turned from her, as if he were *nauſeated*, then gave her a laſh with his tail. *Swift.*

(2.) * *To* Nauseate. *v. n.* To grow ſqueamiſh; to turn away with diſguſt.—Don't over-fatigue the ſpirits, leſt the mind be ſeized with a laſſitude, and *nauſeate*, and grow tired of a particular ſubject before you have finiſhed it. *Watts.*

* NAUSEOUS. *adj.* [from *nauſ·a*, Lat. *nauſeé*, Fr.] Loathſome; diſguſtful; regarded with abhorrence.—

Thoſe trifles, wherein children take delight,
Grow *nauſeous* to the young man's appetite.
Denham.

—Food of a wholeſome juice is pleaſant to the taſte and agreeable to the ſtomach, till hunger and thirſt be well appeaſed; and then it begins to be leſs pleaſant, and at laſt even *nauſeous* and loathſome. *Ray.*—Old thread-bare phraſes will often make you go out of your way to find and apply them, and are *nauſeous* to rational hearers. *Swift.*

* NAUSEOUSLY. *adv.* [from *nauſeous.*] Loathſomely; diſguſtfully.—Knowing how *nauſeouſly* that drug would go down in a lawful monarchy, which was preſcribed for a rebellious commonwealth. *Dryden.*—

Their ſatire's praiſe;
So *nauſeouſly* and ſo unlike they paint. *Garth.*

* NAUSEOUSNESS, *n. ſ.* [from *nauſeous.*] Loathſomeneſs; quality of raiſing diſguſt.—The *nauſeouſneſs* of ſuch company diſguſts a reaſonable man, when he ſees he can hardly approach greatneſs but as a moated caſtle. *Dryden.*

NAUSICAA, the daughter of Alcinous king of the Phæaceans, who entertained Ulyſſes hoſpitably when ſhipwrecked on her father's coaſt. See Ulysses.

NAUTES, a Trojan ſoothſayer, who comforted Æneas, when his fleet was burnt at Sicily. He was the progenitor of the Roman family of the *Nautii* to whom the Palladium was entruſted.

* NAUTICAL. } *adj.* [*nauticus*, Lat.] Pertain-
* NAUTICK. } ing to ſailors.—He elegantly hewed by whom he was drawn, which depainted the *nautical* compaſs with *aut magnes, aut magna. Cambden.*

(I.) * NAUTILUS. *n. ſ.* [Latin; *nautile*, Fr.] A ſhell fiſh furniſhed with ſomething analogous to oars and a ſail.—

Learn of the little *nautilus* to ſail. *Pope.*

(II.) Nautilus, in zoology; a genus belonging to the order of vermes teſtacea. The ſhell onſiſts of one ſpiral valve, divided into ſeveral partments by partitions. There are 17 ſpecies, hiefly diſtinguiſhed by particularities in their hells. Bonani obſerves, that this genus of ſhell ſh is very well named from the Greek ναυτιλ❍, which ſignifies both *a ſhip* and *a ſailor;* for the hells of all the nautili carry the appearance of a hip with a very high poop. Different authors, oth ancient and modern, have called the nautilus by the names of *pompilus, nauplius, ovum polypi, polypus teſtaceus:* and the French call it *le voier.* It is by ſome imagined, that men firſt learned the art of navigation from this animal. The hief diviſion of the nautili is into the thin and hick-ſhelled kinds.

1. Nautilus concha margaritifera, the *thick-ſhelled nautilus*, has a very thick ſhell, and never quits that habitation. This ſhell is divided into 40 or more partitions, which grow ſmaller as they approach the extremity or centre of the ſhell: between every one of theſe cells and the adjoining ones there is a communication by a hole in the centre of every one of the partitions. Through this hole runs a pipe the whole length of the ſhell. It is ſuppoſed by many, that by this pipe the fiſh occaſionally paſſes from one cell to another; but this ſeems improbable, as the fiſh would be cruſhed to death by paſſing through it. It is much more likely that it always occupies the largeſt chamber in its ſhell; that is, that it lives in the cavity between the mouth and the firſt partition, and that it never removes out of this; but that all the apparatus of cells, and the pipe of communication, ſerve only to admit occaſionally air or water into the ſhell, in ſuch proportion as may ſerve the creature for ſwimming. Authors call this ſhell *concha margaritifera*, on account of the fine colour on its inſide, which is more beautiful than any other mother-of-pearl; but it has not been obſerved that this ſpecies of fiſh ever produced pearls. The cornu ammonis, ſo frequently found foſſile, muſt not be confounded with the thick-ſhelled nautilus, though the concamerations and general ſtructure of the ſhell are alike in both; for there are great and eſſential differences between all theſe genera. See Cornu, N° 2; and Snake-Stone. There is a copious and minute account of this curious animal in the *Gentleman's Magazine*, vol. xxii. p. 6, 7, 8, and 301, and vol. xxv. p. 128.

2. Nautilus papyraceus, the paper-ſhelled nautilus. The ſhell of this ſpecies is no thicker than a piece of *paper* when out of the water. This animal is not at all faſtened to its ſhell. There is an opinion, as old as the days of Pliny, that it creeps out of its ſhell, and goes on ſhore to feed. When it is to ſail, it expands two of its arms on high, and between theſe ſupports a membrane, which it throws out, and which ſerves for its ſail; while the two other arms ſerve occaſionally either as oars or as a ſteerage; but this laſt office is generally ſerved by the tail. When the ſea is calm, it is common to ſee numbers of theſe creatures diverting themſelves in this manner: but as ſoon as a ſtorm riſes, or any thing gives them diſturbance, they draw in their legs, and take in as much water as makes them ſpecifically heavier than that in which they float; and then they ſink to the bottom. When they riſe again, they void this water by a number of holes, of which their legs are full. This ſpecies muſt not be confounded with the polypus, notwithſtanding the great reſemblance in the arms and body of the incloſed fiſh. (See Polypus, N° II.)

(1.) * NAVY. *n. ſ.* [from *navis*, Latin.] An aſſembly of ſhips, commonly ſhips of war; a fleet.—On the weſtern coaſt rideth a puiſſant *navy. Shak.*—Levy money and return the ſame to the treaſurer of the *navy* for his majeſty's uſe. *Clarend.*

The narrow ſeas can ſcarce their *navy* bear,
Or crowded veſſels can their ſoldiers hold. *Dryd.*

(2.) Navy is uſed for the fleet or ſhipping of a prince or ſtate. See Marine. The management of the Britiſh royal navy, under the lord high admiral of Great Britain, is entruſted to principal officers and commiſſioners, who hold their places by patent. The royal navy of Great Britain is now in a very flouriſhing ſtate, having been diligently kept up in late reigns, as the natural ſtrength of the kingdom.' When it is complete, it is divided into three ſquadrons, diſtinguiſhed by the colours of the flags carried by the reſpective admirals belonging to the ſame, viz. *red*, *white*, and *blue;* the principal commander of which bears the title of *admiral:* and each has under him a vice-admiral and a rear-admiral, who are likewiſe flag officers.

(3.) Navy, chief officers of the. The principal officers of the navy are four, viz. the treaſurer, whoſe buſineſs it is to receive money out of the exchequer, and to pay all the charges of the navy, by warrant from the principal officers: comptroller, who attends and controuls all payment of wages, is to know the rates of ſtores, to examine and audit all accounts, &c.: ſurveyor, who is to know the ſtate of all ſtores, and ſee wants ſupplied; to eſtimate repairs, charge boatſwains, &c. with what ſtores they receive, and at the end of each voyage to ſtate and audit accounts: clerk of the acts, whoſe buſineſs it is to record all orders, contracts, bills, warrants, &c.

(4.) Navy, Commissioners, &c. of the. The commiſſioners of the navy are 5: the firſt executes that part of the comptroller's duty which relates to the comptrolling the victualler's accounts; the 2d another part of the ſaid comptroller's duty, relating to the account of the ſtorekeepers of the yard; the 3d has the direction of the navy at the port of Portſmouth; the 4th has the ſame at Chatham; and the 5th at Plymouth. There are alſo other commiſſioners at large, the number more or leſs according to the exigencies of public affairs; and ſince the increaſe of the royal navy, theſe have ſeveral clerks under them, with ſalaries allowed by the king. The victualling of the royal navy hath formerly been undertaken by contract; but is now managed by commiſſioners, who hold their office on Tower-hill, London. The navy-office is where the whole buſineſs concerning the navy is managed by the principal officers and commiſſioners.

(5.) Navy Discipline, or Regulations. See Maritime State.

(6.) Navy Exercise. The exerciſe of the great guns was, till lately, very complicated, and abounding with ſuperfluities, in our navy, as well as all others. The following method was then ſucceſsfully introduced by an officer of diſtinguiſhed abilities: Upon *beat to arms* (every body having immediately repaired to their quarters) the midſhipman, commanding a number of guns, is to ſee that they are not without every neceſſary article, as (at every gun) a ſpunge, powder horn, with its priming wires, and a ſufficient quantity of powder, crow, hand-ſpike, bed, quoin, train-tackle, &c. ſending without delay for a ſupply of any thing that may be amiſſing; and for the greater certainty of not overlooking any deficiency, he is to give ſtrict orders to each captain under him, to make the like examination at his reſpective gun, and to take care that every requiſite is in a ſerviceable condition, which he is to report accordingly. And (beſides the other advantages of this regulation) for the ſtill more certain and ſpeedy account being taken upon theſe occaſions, the midſhipman is to give each man his charge at quarters (as expreſſed in the form of the monthly report), who is to ſearch for his particular implements, and, not finding them, is immediately to acquaint his captain, that, upon his report to the midſhipman, they may be replaced. The man who takes care of the powder is to place himſelf on the oppoſite ſide of the deck from that where we engage, excepting when fighting both ſides at once, when he is to be amid-ſhips. He is not to ſuffer any other man to take a cartridge from him but he who is appointed to ſerve the gun with that article, neither in time of a real engagement nor at exerciſe. Lanthorns are not to be brought to quarters in the night, until the midſhipman gives his orders for ſo doing to the perſon he charges with that article. Every thing being in its place, and not the leaſt lumber in the way of the guns, the exerciſe begins with, 1. *Silence.* At this word every one is to obſerve a ſilent attention to the officers. 2. *Caſt looſe your guns.* The muzzle laſhing is to be taken off from the guns, and (being coiled up in a ſmall compaſs) is to be made faſt to the eye-bolt above the port. The laſhing tackles at the ſame time to be caſt looſe, and middle of the breeching ſeized to the thimble of the pomillion. The ſpunge to be taken down, and, with the crow, handſpike, &c. laid upon the deck by the gun. N. B. When prepared for engaging an enemy, the ſeizing within the clinch of the breeching is to be cut, that the gun may come ſufficiently within board for loading, and that the force of the recoil may be more ſpent before it acts upon the breeching. 3. *Level your guns.* The breech of your metal is to be raiſed ſo as to admit the foot of the bed's being placed upon the axle-tree of the carriage, with the quoin upon the bed, both their ends being even one with the other. N. B. When levelled for firing, the bed is to be laſhed to the bolt which ſupports the inner end of it, that it may not be thrown out of its place by the violence of the gun's motion when hot with frequent diſcharges. 4. *Take out your tompions.* The tompion is to be taken out of the gun's mouth, and left hanging by its laniard. 5. *Run out your guns.* With the tackles hooked to the upper bolts of the carriage, the gun is to be bowſed out as cloſe as poſſible, without the aſſiſtance of crows or hand-ſpikes; taking care at the ſame time to keep the breeching clear of the trucks by hauling it through the rings; it is then to be bent ſo as to run clear when the gun is fired. When the gun is out, the truckle falls are to be laid along ſide the carriages in neat fakes, that, when the gun by recoiling overhauls them, they may not be ſubject to get foul, as they would if in a common coil. 6. *Prime.* If the cartridge is to be pierced with the priming wire, and the vent filled with powder, the pan alſo is to be filled; and the flat ſpace, having a ſcore through it at the end of the pan, is to be covered, and this part of the priming is to be bruiſed with the round part of the horn. The apron is to be laid over, and the horn hung up out of danger from the flaſh of the priming. 7. *Point your guns.* At this command the gun is, in the firſt place, to be elevated to the height of the object, by means of the ſide ſights; and then the perſon pointing is to direct his fire by the upper ſight, having a crow on one ſide and a hand-ſpike on the other, to heave the gun by his direction till he catches the object. N. B. The men who heave the gun for pointing are to ſtand between the ſhip's ſide and their crows or hand-ſpikes, to eſcape the injury they might otherwiſe receive from their being ſtruck againſt them, or ſplintered by a ſhot; and the man who attends the captain with a match is to bring it at the word, "Point your guns," and kneeling upon one knee oppoſite the train-truck of the carriage, and at ſuch a diſtance as to be able to touch the priming, is to turn his head from the gun, and keep blowing gently upon the lighted match to keep it clear from aſhes. And as the miſſing of an enemy in action, by neglect or want of coolneſs, is moſt inexcuſable, it is particularly recommended to have the people thoroughly inſtructed in pointing well, and taught to know the ill conſequences of not taking proper means to hit their mark; wherefore they ſhould be made to elevate their guns to the utmoſt nicety, and then to point with the ſame exactneſs, having caught the object through the upper ight. At the word, 8. *Fire*, the match is intantly to be put to the bruiſed part of the priming; and when the gun is diſcharged, the vent is to be cloſed, in order to ſmother any ſpark of fire that may remain in the chamber of the gun; nd the man who ſpunges is immediately to place imſelf by the muzzle of the gun in readineſs; when, at the next word, 9. *Spunge your gun*, The punge is to be rammed down to the bottom of he chamber, and then twiſted round, to extinuiſh effectually any remains of fire; and when rawn out, to be ſtruck againſt the outſide of he muzzle, to ſhake off any ſparks or ſcraps of he cartridge that may have come out with it; nd next, its end is to be ſhifted ready for loadg; and while this is doing, the man appointed provide a cartridge is to go to the box, and r the time the ſpunge is out of the gun, he is to ive it ready; and at the word, 10. *Load with rtridge*, The cartridge (with the bottom end ſt, ſeam downwards, and a wad after it) is to put into the gun, and thruſt a little way within e mouth, when the rammer is to be entered; e cartridge is then to be forcibly rammed wn, and the captain at the ſame time is to keep priming wire in the vent, and, feeling the rtridge, is to give the word *home*, when the nmer is to be drawn, and not before. While s is doing, the man appointed to provide a ot is to provide one (or two, according to the ler at that time) ready at the muzzle, with a d likewiſe; and when the rammer is drawn, the word, 11. *Shot your guns*, The ſhot and d upon it are to be put into the gun, and uſt a little way down, when the rammer is be entered as before. The ſhot and wad are be rammed down to the cartridge, and there e a couple of forcible ſtrokes, when the mer is to be drawn, and laid out of the way the guns and tackles, if the exerciſe or action ontinued; but if it is over, the ſpunge is to be ſecured in the place it is at all times kept in. 12. *Put in your tompions*. The tompions are to be put into the muzzle of the cannon. 13. *Houſe your guns*. The ſeizing is to be put on again upon the clinched end of the breeching, leaving it no ſlacker than to admit of the guns being houſed with eaſe. The quoin is to be taken from under the breech of the gun, and the bed, ſtill reſting upon the bolt within the carriage, thruſt under, till the foot of it falls off the axle-tree, leaving it to reſt upon the end which projects out from the foot. The metal is to be let down upon this. The gun is to be placed exactly ſquare; and the muzzle is to be cloſe to the wood, in its proper place for paſſing the muzzle laſhings. 14. *Secure your guns*. The muzzle laſhings muſt firſt be made ſecure, and then with one tackle (having all its parts equally taught with the breeching) the gun is to be laſhed. The other tackle is to be bowſed taught, and by itſelf made faſt, that it may be ready to caſt off for laſhing a ſecond breeching. N. B. Care muſt be taken to hook the firſt tackle to the upper bolt of the carriage, that it may not otherwiſe obſtruct the reeving of the ſecond breeching, and to give the greater length to the end part of the fall.' No pains muſt be ſpared in bowſing the laſhing very taught, that the gun may have the leaſt play that is poſſible, as their being looſe may be productive of very dangerous conſequences. The quoin, crow, and hand-ſpike, are to be put under the gun, the powder-horn hung up in its place, &c. Being engaged at any time when there is a large ſwell, a rough ſea, or in ſqually weather, &c. as the ſhip may be liable to be ſuddenly much heeled, the port tackle fall is to be kept clear, and (whenever the working of the gun will admit of it) the man charged with that office is to keep it in his hand; at the ſame time the muzzle-laſhing is to be kept faſt to the ring of the port, and being hauled taught, is to be faſtened to the eye-bolt over the port-hole, ſo as to be out of the gun's way in firing, in order to haul it in at any time of danger. This precaution is not to be omitted when engaging to the windward any more than when to the leeward, thoſe ſituations being very ſubject to alter at too ſhort a warning. A train-tackle is always to be made uſe of with the lee-guns; and the man ſtationed to attend it is to be very careful in preventing the guns running out at any improper time.

NAWORTH CASTLE, an ancient caſtle in Cumberland, ten miles from Carliſle, near the Gelt, ſtill entire and inhabited. It is a large pile, ſquare, and built round a court. On the N. it ſtands over the river Ithing, at a great height, the banks ſhagged with wood. The whole houſe is a very irregular building, the rooms numerous, acceſſible by 16 ſtaircaſes, with moſt frequent and ſudden aſcents and deſcents, &c.—The great hall has a gallery at one end, adorned with four vaſt creſts carved in wood; viz. a griffin and dolphin, with the ſcollops; an unicorn, and an ox with a coronet round his neck. In front is a figure in wood of an armed man; two others, in ſhort jackets and caps; a pouch pendant behind, and the mutilated remains of Priapus to each; one has wooden ſhoes. Theſe ſeem the *ludibrium* *aulæ* in thoſe groſs days. The top and upper end of the room is painted in ſquares, to the number of 107, repreſenting the Saxon kings and heroes. The chimney here is 5½ yards broad. Within this is another apartment, hung with old tapeſtry, a head of Ann of Cleves; on one ſide of her a ſmall picture of a lady in full length, &c. and many others. Many of theſe paintings were brought from Kirk-Oſwald caſtle when it was demoliſhed. The chapel has a cieling, and part of its wainſcot of the ſame kind, being paintings of patriarchs, Jewiſh kings, &c. It has a floor of plaſter of Paris, as have ſome other of the rooms. Some of the apartments are very large and ſpacious. The ſmall Popiſh chapel is above ſtairs, and joining to this chapel is the library, which has a wooden roof; the books are old, there are not above one or two of the MSS. here now. This caſtle was built by one of the Dacres, about the reign of Henry III. In the garden-walls were ſtones with Roman inſcriptions, which the late earl of Carliſle gave to Sir Thomas Robinſon, and were by him removed to his muſeum at Rookſby. On one of theſe ſtones is this inſcription, *Peditum centum quinquaginta Britannorum*; whence it appears, that the Romans, when in poſſeſſion of South Britain, ſometimes indulged the national troops with the favour of garriſoning their own territories.

(1.) **NAXIA**, in modern geography, a conſiderable iſland of the Archipelago, 25 miles in length and 88 in circumference, anciently called **Naxos**. It is covered with orange, olive, lemon, cedar, citron, pomegranate, fig, and mulberry trees; and there are many ſprings and brooks. It has no harbour, and yet they carry on a conſiderable trade in barley, wine, figs, cotton, ſilk, flax, cheeſe, ſalt, oxen, ſheep, mules, and oil. It ſtill maintains its ancient reputation for the beſt wine in the Levant. They burn only oil of maſtic, though olive oil is exceedingly cheap. It is inhabited both by Greeks and Latins, who live in great dread of the Turks; for when the meaneſt of their ſhips appear here, they always wear red caps like galley ſlaves, and tremble before the loweſt officer; but as ſoon as they are gone, they put on their caps of velvet. The ladies are ſo vain, that when they return out of the country, they have forty women in their train, half on foot and half on aſſes; one of whom carries a napkin or two, another a petticoat, another a pair of ſtockings, and ſo on; which appears very ridiculous to ſtrangers. There are four archbiſhops ſees in this iſland, and many villages, though the whole iſland does not contain above 8000 inhabitants. The higheſt mountain is Zia, which ſignifies the mountain of Jupiter. There are but few antiquities, except ſome remains of the temple of Bacchus. Some ſay they have mines of gold and ſilver; however, there is one of emery, which is ſo common here, and ſo cheap, that the Engliſh often ballaſt their ſhips with it. Some ſay it is 100 miles in circumference and 30 broad.

(2.) Naxia, a conſiderable town, capital of the above iſle, over againſt the iſle of Paros, with a caſtle and two archbiſhops ſees, the one Greek and the other Latin. The greateſt part of the inhabitants are Greeks. Lon. 25. 51. E. Lat. 37. 8. N.

NAXIANS, the people of Naxos.

NAXIVAN, Nacsivan, or Nacchivan, a town of Perſian Armenia, ſuppoſed to have been the ancient *Artaxata*, one of the largeſt cities of the eaſt, once containing 40,000 houſes. It was ruined by Abbas I. who removed the inhabitants into the interior parts of Perſia. It began to recover in the 17th century, when it contained 2000 houſes, beſides bazars, caravanſeras, public baths, &c. It is 90 miles SE. of Erivan, and 158 E. of Erzerum.

NAXIUS Lapis. See Naxus, N° 3.

NAXKOW, a town of Denmark, in the iſle of Laland, with a commodious harbour, and a plentiful fiſhery; 60 miles SW. of Copenhagen. Lon. 11. 31. E. Lat. 54. 52. N.

(1.) **NAXOS**, or (1.) **NAXUS**, in ancient geography, an iſland in the Ægean Sea, now called Naxia, formerly Strongyle, *Dia*, *Dionyſias*, *Callipolis*, and *Little Sicily*. It was called *Strongyle*, from a Greek word ſignifying *round*, though in reality it is rather ſquare than round. The names of *Dia* or *Divine*, and *Dionyſias*, were given it as being conſecrated in a peculiar manner to Dionyſius or Bacchus. That of *Callipolis* Pliny and Solinus derive from the metropolis of the iſland, formerly a moſt beautiful city, which is the import of the name *Callipolis*. The great fertility of the country gave riſe to the name of *Little Sicily*, Naxus being the moſt fertile of all the Cyclades, as Agathemerus informs us, and not leſs ſo than Sicily itſelf. The name *Naxus*, ſome aſſert, was borrowed from one Naxus, under whoſe conduct the Carians poſſeſſed themſelves of the iſland; others ſay from Naxus, the ſon of Endymion. Stephanus, Suidas, and Phavorinus derive it from ναξαι, *to ſacrifice*, from the many ſacrifices offered here to Bacchus. Bochart agrees as to the ſacrifices in honour of Bacchus; but will have the word to be a corruption of the Phœnician *nacſu*, or *nicſa*, a *ſacrifice* or *offering*. Naxos has Paros on the W. Myconos and Delos on the N. and Ios on the S. It was famed for its excellent wines. Archilochus, as quoted by Athenæus, compares them to the nectar of the gods; and Aſclepiades, cited by Stephanus, ſays that Bacchus himſelf taught the inhabitants to cultivate their vines. It abounded with all ſorts of delicious fruits; orange, olive, lemon, cedar, citron, pomegranate, mulberry, and fig-trees. It was famous for quarries of that ſort of marble which the Greeks called *ophites*, from its being green, and ſpeckled with white ſpots like the ſkin of a ſerpent. The beſt emeralds are found here on mountains near the W. coaſt, whence the neighbouring cape is called by the Italians *Capo ſmeriglio*, or the *Emerald cape*. Diodorus relates that the iſland was firſt peopled by the Thracians. Theſe were ſubdued by a body of Theſſalians, who having poſſeſſed the iſland for above 200 years, were compelled to abandon it by a famine. After the Trojan war, the Carians ſettled here, and called the iſland *Naxos*, from their king, who was the ſon of Polemon. He was ſucceeded by his ſon Leucippus, and Leucippus by his ſon Smardius, in whoſe reign Theſeus, coming out of Crete, landed here with Ariadne, whom he was, in his ſleep, commanded by Bacchus to leave in this iſland.

colony of Cnidians and Rhodians afterwards ſettled here under Hippothous and Xuthus, the laſt of all the Ionians who poſſeſſed the whole iſland; whence the Naxians are, by Herodotus, called *Ionians*, and ranked among the Athenian colonies.

(2.) **Naxus**, or **Naxos**, the capital of the above iſland now called alſo **Naxia**. Near it the Athenians and Bœotians, under Chabrias, defeated the Lacedemonians under Ageſilaus; on the 20th Sept. A. A. C. 377.

(3.) **Naxus**, an ancient town of Crete, famous for its hones, made of the *lapis Naxius*.

(4.) **Naxus**, a town of Sicily, built by the Chalcidians, on the S. ſide of Mount Taurus, deſtroyed by Dionyſius the tyrant; from whoſe ruins **Taurominium**, built by Timoleon, either aroſe or was increaſed. *Plutarch*.

(5, 6.) **Naxus**, K. and founder of Naxos. See **Naxus**, N° 1.

(1.) **NAY**, a town of France, in the dep. of the Lower Pyrenees; 9 miles SSE. of Pau, and 15 E. of Oleron.

(2.) **Nay**, a town of France, in the dep. of the Upper Loire; 12 miles SE. of Brioude.

(3.) **Nay**, a river of France, which runs into the Charente, between Saintes and Cognac.

(4.) **Nay**, a town of Switzerland, in Berne, the birth-place of J. **Abbadie**.

(5.) * **Nay**. *adv*. [*na*, Sax. or *ne aye*.] 1. No; an adverb of negation.—

Diſputes in wrangling ſpend the day,
Whilſt one ſays only yea, and t'other *nay*. *Denh.*

2. Not only ſo, but more. A word of amplification.—A good man always profits by his endeavour, yea, when he is abſent; *nay*, when dead, by his example and memory. *Ben Jonſon*.—He catechiſed the children in his chamber, giving liberty, *nay* invitation to as many as would, to come and hear. *Fell*.—This is then the allay of Ovid's writings, which is ſufficiently recompenſed by his other excellencies; *nay*, this very fault is not without its beauties; for the moſt ſevere cenſor cannot but be pleaſed. *Dryden*.—If a ſon ſhould ſtrike his father, not only the criminal but his whole family would be rooted out; *nay*, the inhabitants of the place where he lived would be put to the ſword; *nay*, the place itſelf would be razed. *Spectator*. 3. Word of refuſal.—They have beaten us openly uncondemned, being Romans, and have caſt us into priſon; and now do they thruſt us out privily? *nay* verily, but let them come themſelves and fetch us out. *Acts* xvi. 37.—The fox made ſeveral excuſes, but the ſtork would not be ſaid *nay*. *L'Eſtrange*.

He that will not when he may,
When he would he ſhall have *nay*. *Prov.*

NAYERS, or **Naires**. See **Naires**.

NAYLAND, a town of Suffolk, on the Stour, which divides it from Eſſex. Its chief manufacture is ſoap. It has a market on Friday, and is ſix miles N. of Colcheſter, and 56 NE. of London.

NAYLOR, James, a noted Engliſh enthuſiaſt, born about 1616, in the pariſh of Ardeſley, near Wakefield in Yorkſhire. His father, though proprietor of an eſtate, gave his ſon but a mean education, though his parts were very conſiderable. He married young, and ſettled in Wakefield pariſh. In 1641 he was a ſoldier under Lord Fairfax, being then a preſbyterian, but became an independent, and was made quarter-maſter under Gen. Lambert. In 1651-2 he was converted by George Fox the quaker, and commenced a preacher and prophet among that people. One of his prophecies was, that the laſt judgment ſhould be on the 15th day of next November. The falſehood of this prediction was ſoon perceived, yet ſuch is the power of enthuſiaſm, that his fame roſe daily. He went to London in 1655, and having ſtrange fancies of celeſtial illuminations, conſidered himſelf as a favourite of heaven. In 1656 he went into the weſt of England, but his extravagancies were ſo great, and his opinions ſo blaſphemous, that even in thoſe days of fanatical deluſion, they were heard with ſuch horror, that he was impriſoned a month in Exeter gaol. Reſolving to return to London, he made his entrance into Briſtol, in imitation of the manner our Saviour entered into Jeruſalem, the people calling out "Holy, holy, holy, lord god of Sabaoth," &c. for which impious conduct he was apprehended with ſix of his aſſociates, ſent to London, impriſoned, and condemned to be whipt, and put to hard labour. The ſentence was executed, and he recovered his ſenſes, expreſſed his repentance, and was again received by the quakers, who had diſowned him. In 1659 he was freed from priſon, and in 1660 ſet off to ſee his wife and children; but being robbed and left bound by the way, he was carried to a friend's houſe at Rippon, where he died in November 1660. He was the author of ſeveral works; but his eccentricities, rather than his writings, have preſerved his memory, and he is recorded not ſo much as a man of genius or parts, though poſſeſſed of both, but rather as a ſtriking example of the power of enthuſiaſm.

NAYRES, the nobility of the Malabar coaſt. They are reckoned the oldeſt nobility in the world; for the moſt ancient writers mention them, and quote the law that permits the Nayre ladies to have many huſbands; every one being allowed four, or, according to Mr Cruttwell, from ſeven to twelve; only they muſt belong to the ſame tribe. Their houſes, which ſtand ſingle, have as many doors as the lady has huſbands. When one of them viſits her, he walks round the houſe, ſtriking with his ſabre on his buckler; he then opens his door, and leaves a domeſtic with his arms in a kind of porch, who ſerves to inform others that the lady is engaged. One day in the week the doors are all opened, and all her huſbands viſit and dine with her. Each huſband gives a ſum of money, or portion, at the time of marriage; and, the wife only has the charge of the children. The Nayres, even the Samorin, and the other princes, have no other heirs than the children of their ſiſters. This law was eſtabliſhed, that the Nayres, having no family, might be always ready to march againſt the enemy. When the nephews are of age to bear arms, they follow their uncles. The name of *father* is unknown to a Nayre child. He ſpeaks of the huſbands of his mother and of his uncles, but never of his father.

* **Nayword**. *n. ſ.* [*nay* and *word*.] 1. The ſide of denial; the ſaying nay. Not in uſe.—

You would believe my ſaying,
Howe'er you lean to th' *nayword*. *Shak.*

2. A proverbial reproach; a bye-word.—If I do not gull him into a *nayword*, and make him a common recreation, do not think I have wit enough to lie ſtraight in my bed. *Shak.*—3. A watchword. Not in uſe.—I have ſpoke with her; and we have a *nayword* how to know one another. I come to her in white, and cry mum; ſhe cries budget; and by that we know one another. *Shak.*

NAZALEOD. See ENGLAND, § 13.

NAZAREAN, } or NAZARITE, has various
NAZARENE, } ſignifications, as 1. One that is of Nazareth, or a native of this city. 2. It was given to Jeſus Chriſt and his diſciples, and is commonly taken in a ſenſe of deriſion and contempt, in ſuch authors as have written againſt Chriſtianity. 3. A ſect of heretics. 4. A man that has taken a vow to obſerve the rules of Nazariteſhip, either for his whole life, as Samſon and John the Baptiſt; or only for a time, as thoſe mentioned in Numbers vi. 18, 19, 20. Amos ii 11, 12. 5. Laſtly, Nazarite in ſome paſſages of Scripture denotes a man of particular diſtinction and dignity in the court of ſome prince. I. & II. The name Nazarene belongs to Jeſus Chriſt, not only becauſe of his having lived the greateſt part of his life at Nazareth, but alſo becauſe the prophets had foretold that he ſhould be called a *Nazarene*. See Matth. ii. 23. We find no particular place in the prophets in which it is ſaid that the Meſſiah ſhould be called a Nazarene; and St Matthew only quotes the prophets in general. Perhaps he would inſinuate, that the conſecration of the Nazarites, and the great purity of which they made profeſſion, was a type and a ſort of a propheſy of thoſe of our Saviour, or elſe that the name נזר *Nazir* or *Nazarite*, given to the patriarch Joſeph, Gen. xlix. 26. Deut. xxxiii. 16. was a propheſy which was to be fulfilled in the perſon of Jeſus Chriſt, of whom Joſeph was a figure. St Jerome was of opinion, that St Matthew here alludes to that paſſage of Iſaiah xi. 1. and lx. 21. "And there ſhall come forth a rod out of the ſtem of Jeſſe, and a branch (Heb. *Nezer*) ſhall grow out of his roots." This branch or *Nezer*, and this rod, are certainly intended to denote Jeſus Chriſt, by the general conſent of all the fathers and interpreters. III. The ſect of NAZARENES were Chriſtians converted from Judaiſm, whoſe chief error conſiſted in defending the neceſſity or expediency of the works of the law, and who obſtinately adhered to the practice of the Jewiſh ceremonies. The name Nazarenes at firſt had nothing odious in it, and it was often given to the firſt Chriſtians. The fathers frequently mention the *goſpel of the Nazarenes*, which differs nothing from that of St Matthew, which was either in Hebrew or Syriac, for the uſe of the firſt converts, but was afterwards corrupted by the Ebionites. Theſe Nazarenes preſerved this firſt goſpel in its primitive purity. Some of them were in exiſtence in the time of St Jerome, who does not reproach them with any error. They were very zealous obſervers of the law of Moſes, but held the traditions of the Phariſees in very great contempt.—IV. Nazarite, when uſed to ſignify a perſon under the ancient law, who made a vow of obſerving a more than ordinary degree of purity, denotes a man or woman who engaged by a vow to abſtain from wine and all intoxicating liquors, to let their hair grow without cutting or ſhaving, not to enter into any houſe that was polluted by having a dead corpſe in it, nor to be preſent at any funeral. When any one died in their preſence, they began again the whole ceremony of their conſecration and Nazariteſhip. This ceremony generally laſted 8 days, ſometimes a month, and ſometimes their whole lives. When the time of their Nazariteſhip was accompliſhed, the prieſt brought the perſon to the door of the temple, who there offered a he lamb for a burnt offering, a ſhe lamb for an expiatory ſacrifice, and a ram for a peace-offering. They offered likewiſe loaves and cakes, with wine for the libations. After all this the prieſt or ſome other ſhaved the head of the Nazarite at the door of the tabernacle, and burnt his hair, throwing it upon the fire of the altar. Then the prieſt put into the hand of the Nazarite the ſhoulder of the ram roaſted, with a loaf and a cake, which the Nazarite returning into the hands of the prieſt, he offered them to the Lord, lifting them up in the preſence of the Nazarite. And from this time he might again drink wine, his Nazariteſhip being accompliſhed. As to thoſe who were perpetual Nazarites, as were Samſon and John the Baptiſt, it appears that they were conſecrated to their Nazariteſhip by their parents, and continued all their lives in this ſtate, without drinking wine or cutting their hair. Thoſe who made a vow of Nazariteſhip out of Paleſtine, and could not come to the temple when their vow was expired, contented themſelves with obſerving the abſtinence required by the law, and after that cutting their hair in the place where they were. As to the offerings and ſacrifices preſcribed by Moſes, which were to be offered at the temple by themſelves, or by others for them, they deferred this till they could have a convenient opportunity. Hence, St Paul being at Corinth, and having made the vow of a Nazarite, he had his hair cut off at Cenchrea, and put off fulfilling the reſt of his vow till he ſhould arrive at Jeruſalem. Acts xviii. 18. When a perſon found that he was not in a condition to make a vow of Nazariteſhip, or had not leiſure to perform the ceremonies belonging to it, he contented himſelf with contributing to the expence of the ſacrifice and offerings of thoſe who had made and fulfilled this vow; and thus became a partaker in the merit of ſuch Nazariteſhip. When St Paul came to Jeruſalem, A.D. 58, the apoſtle St James the Leſs, with the other brethren, ſaid to him, Acts xxi. 23, 24. that, to quiet the minds of the converted Jews, who had been informed that he everywhere preached up the entire abolition of the law of Moſes, he ought to join himſelf to four of the faithful who had a vow of Nazariteſhip upon them, and contribute to the charge of the ceremony at the ſhaving of their heads; by which the new converts would perceive that he continued to keep the law.—V. The Hebrew word NAZIR, or Nazarite, which is made uſe of to expreſs a man exalted to great dignity, as it is ſaid of the patriarch Joſeph, Gen. xlix. 26. and Deut. xxxiii. 16. "that he was ſeparate from his brethren," as it is in our tranſlation; or as the Vulgate and others underſtand

the Hebrew, "that he was as a Nazarite among his brethren," is variouſly underſtood. Some think that the Hebrew word נזר *Nazir* in theſe places, ſignifies one who is crowned, choſen, ſeparated, or diſtinguiſhed; as the word נזר *Nazir* ſignifies a crown. The LXX tranſlate this word *a chief* or him that is honoured. Calmet thinks that this was a term of dignity in the courts of eaſtern princes; and that at this day in the court of Perſia, the word *Nazir* ſignifies the ſuperintendant general of the king's houſehold, the chief officer of the crown, the high ſteward of his family, treaſures, and revenues; and that in this ſenſe Joſeph was the Nazir of the court of Pharaoh. Le Clerc tranſlates *Nazir* a prince, and calls Joſeph "the prince of his brethren," in the two places already quoted. Mr Pool declares in favour of this laſt tranſlation. See *Joſephus*, *Chardin*, *Chryſoſtom*, *St Jerom*, *&c.*

(1.) **NAZARETH**, a little city of Judæa in the tribe of Zebulun, in Lower Galilee, W. of Tabor, and E. of Ptolemais. Euſebius ſays, it is 15 miles from Legion towards the E. This city is much celebrated in the ſcriptures, for having been the uſual place of the reſidence of Jeſus Chriſt for the 30 years of his life. Luke ii. 51. There he became incarnate, lived in obedience to Joſeph and Mary, and thence was called a NAZARENE. He preached there ſometimes in the ſynagogue, *id.* iv. 16: But becauſe his countrymen had no faith in him, and were offended at the meanneſs of his original, he did not perform many miracles there, Matth. xiii. 54. 58. ſo he fixed his habitation at Capernaum for the latter part of his life, *id.* iv. 13. Nazareth was ſituated upon an eminence; and on one ſide there was a precipice, from whence the Nazarenes one day had a deſign of throwing down our Saviour, becauſe he upbraided them with heir incredulity, Luke iv. 29. St Epiphanius, ſays, hat in his time Nazareth was only a village, and hat to the reign of Conſtantine it was inhabited by Jews alone, excluſive of all Chriſtians. Adamnanus, a writer of the 7th age, ſays, that in his ime there were two great churches at Nazareth, one in the midſt of the city, built upon two arches, in the place where our Saviour's houſe had ſtood. Under the two arches, was a very fine ountain, which furniſhed water to the whole city. The other church was built where the houſe ſtood wherein the angel Gabriel announced to the virin Mary our Lord's incarnation; and we are old that this church, which is ſupported by two rches, is ſtill in exiſtence. Mr Maundrell ſays, hat there is a convent built over the place of anunciation, the chamber where ſhe received the ngel's ſalutation, having been about 500 years go removed from Nazareth by angels to Loretto. See LORETTO, N° 1.) Calmet's opinion upon he different tranſlations of this famous houſe of Loretto is, that they were only ſo many different buildings made upon the model of the church of Nazareth. Mariti tells us, that in the E. part of he city ſtands the church dedicated to the Bleſſed Virgin; which the zeal of the Cænobites raiſed from the ruins of that which had been deſtroyed by the Saracens. It is a very handſome building, and conſiſts of three naves; in the middle of which is the principal altar; to which there is an aſcent by two magnificent ſtairs, much admired for their iron balluſtrades, the work of an ingenious monk of the convent. The deſcent to the grotto or annunciation chapel below is by ſteps of beautiful marble, cut with great taſte. Two beautiful columns of oriental granite ſtrike the eye at entrance. They have been conſtructed both for ſupport and ornament. The altar of this ſubterranean chapel is extremely elegant; and the different kinds of marble with which it is ornamented receive an additional luſtre from the combined light of ſeveral ſilver lamps preſented by Chriſtian princes. On ſolemn feſtivals, the walls and the pilaſters are ornamented with various pieces of tapeſtry, repreſenting the myſteries of the Virgin; a ſuperb preſent from the houſe of Auſtria. In the W. part of the city ſtands a Chriſtian church, built, as is ſaid, on the ſite of the ancient ſynagogue where Jeſus ſhowed the Jews the accompliſhment of the prophecies in his perſon. At ſome diſtance is a large ſtone of a round form, called *Chriſt's Table*. Nazareth formerly held the 3d rank under the patriarch of Jeruſalem. At preſent it is part of the domains of the chief of Acre. The ancient city, after the ravages of fanaticiſm, was reduced to a miſerable hamlet, containing only a few Arab huts. Under Daher Omar, however, it recovered very conſiderably, and is now of far more importance. Lon. 35. 20. E. Lat. 32. 30. N.

(2.) NAZARETH, a beautiful town of Pennſylvania, in Northampton county, chiefly inhabited by about 500 Moravians. It is regularly built, chiefly of freeſtone, in a very healthy ſituation. It has an academy, where youth are taught Latin, French, muſic, drawing, &c. It lies 10 miles N. by E. of Bethlehem, and 63 N. by W. of Philadelphia.

(3.) NAZARETH, a river of Africa, in Lower Guinea, which runs into the Atlantic, near Cape Lopez Gonſalvo.

NAZARITE. See NAZARENE.

(1.) **NAZE**, or LINDESNESS, a cape on the S. coaſt of Norway, joining the main land by a very narrow rocky isthmus. Though high, barren, and rocky, it is inhabited by 12 families of peaſants. It projects into the North Sea, one mile SW. and is half a mile broad. Lon. 7. 12. E. Lat. 58. 1. N.

(2.) NAZE, or NAZE POINT, a headland on the E. coaſt of Eſſex, S. of Harwich, and 60 miles from the North Foreland, with which it forms the mouth of the Thames. See FORELAND, N° 2.

NAZIANZEN. See GREGORY, N° 20.

NAZIANZUM, or
NAZIANZUS, } a ſea port of Cappadocia, famous for the birth of St Gregory.

NAZIM, the lord lieutenant, viceroy or governor of a province in Hindoſtan; the ſame as *Lubabdar*, or NABOB.

NAZIR. See NAZARENE.

N. B. a contraction for *Nota Bene*, Mark well, or take particular notice.

* **NE.** *adv.* [Saxon. This particle was formerly of very frequent uſe, both ſingly and by contraction in compound words: as *nill* for *ne will* or *will not*; *nas* for *ne has* or *has not*; *nis* for *ne is* or *is not*]. Neither; and not.—

His warlike ſhield all cover'd cloſely was,
Ne might of mortal eye be ever ſeen. *Spenſer.*

(1.) NEA, a river of Norway, which runs into Lake Soelbo, in Drontheim.

(2.) Nea, an iſle between Lemnos and the Helleſpont; which roſe during an earthquake. *Plin.* ii. 87.

NEÆTHUS, a river of Italy in Magna Græcia, near Crotona; now called Neto.

* NEAF. *n. ſ.* [*neſi*, Iſlandick.] A fiſt. It is retained in Scotland; and in the plural *neaves*.—Give me thy *neaf*, Monſieur Muſtardſeed. *Shak.*

(1.) NEAGH, a river of Wales in Denbighſhire, running into the Conway, 6 miles below Llanroſt.

(2.) Neagh, Lough. See Lough-Neagh.

(1.) NEAL, Daniel, an Engliſh hiſtorian and divine, born at London in 1678, and educated at Merchant Tailors ſchool, and Rowe's Diſſenting Academy. He afterwards went to Utrecht and Leyden. In 1706, he was elected paſtor of a congregation of Independents in Alderſgate-Street. He wrote a *Hiſtory of New England*, in 2 vols 8vo, and a *Hiſtory of the Puritans*, in 4 vols 4to, with ſome other works. He died in 1743.

(2.) Neal, a town of Ireland, in Mayo.

(1.) * *To* Neal. *v. a.* [*onælan*, Saxon; to kindle.] To temper by a gradual and regulated heat.—The workmen let it cool by degrees in ſuch relentings of fire, as they call their *nealing* heats. *Digby.*—This did happen for want of the glaſſes being gradually cooled or *nealed*. *Boyle.*—If you file, engrave, or punch upon your ſteel, *neal* it firſt, becauſe it will make it ſofter, and conſequently work eaſier. *Maxon's Mechanical Exerciſes.*

(2.) * *To* Neal. *v. n.* To be tempered in fire.—Reduction is chiefly effected by fire, wherein if they ſtand and *neal*, the imperfect metals vapour away. *Bacon.*

NEALED, *part. adj.* among ſeamen, is uſed when the ſounding is deep water cloſe to the ſhore; as alſo when the ſhore is ſandy, clayey, oozy, or foul and rocky ground.

(1.) NEALING, *n. ſ.* or rather Annealing, is the preparing of ſeveral metals, by beating or baking them in the oven, or the like.

(2.) Nealing is alſo uſed for the act or art of burning or baking earthen or other ware in an oven. The miners at Mendip, when they meet with a rock they cannot cut through, anneal it by laying on wood and coal, and contriving the fire ſo, that they quit the mine before the operation begins, it being dangerous to enter it again before it be quite cleared of the ſmoke.

(3.) Nealing of glass is the baking of glaſs, to dry, harden, and give it the due conſiſtence, after it has been blown, and faſhioned into the proper works.—This is uſually performed in a kind of tower called the *leer*, built over the melting furnace. See Glass-making, *Sect.* IV, § III. Nealing of glaſs is alſo uſed for the art of ſtaining glaſs with metalline colours. "One fine uſe of ſilver (ſays Mr Boyle) was only diſcovered ſince the art of annealing upon glaſs came to be practiſed. For prepared ſilver, or even the crude metal, being burnt on a glaſs plate, will tinge it of a fine yellow or golden colour. And there are ſeveral mineral earths, and other coarſe matters of uſe in this art, which by means of fire impart tranſparent colours to glaſs, and ſometimes very different ones from thoſe of the bodies themſelves.

(4.) Nealing of Steel, is the heating it in the fire to a blood-red heat, and then taking it out, and letting it cool gently of itſelf. This is done to make it ſofter, in order to engrave or punch upon it. See Tempering and Engraving.

(5.) Nealing of Tile is uſed in ancient ſtatutes for the burning of tile.

NEANDER, Michael, a proteſtant divine, born at Sofa, in Sileſia, in 1513. He was educated at Sofa, and afterwards, at Wittemburg, under Melancthon. He taught with much applauſe at Nordhanſen in 1549; and afterwards for 40 years in the academy of Ilfeldt and Pfortzheim. He publiſhed ſeveral uſeful works, and died at Pfortzheim, April 26, 1595.

NEANTHES, an orator and hiſtorian of Cyzicum; who flouriſhed, A. A. C. 257.

(1.) * NEAP. *adj.* [*nepflod*, Sax. *næfig*, poor.] Low; decreſcent. Uſed only of the tide, and therefore ſometimes uſed ſubſtantively.—The mother of waters, the great deep, hath loſt nothing of her ancient bounds. Her motion of ebbing and flowing, of high ſprings and dead *neaps*, are as conſtant as the changes of the moon. *Hakewill on Providence.*—How doth the ſea conſtantly obſerve its ebbs and flows, its ſprings and *neap*-tides, and ſtill retain its ſaltneſs? *Ray.*

(2.) Neap, or Neep Tides, are thoſe tides which happen when the moon is in the middle of the 2d and 4th quarters. They are low tides, in reſpect of their oppoſites the ſpring-tides. As the higheſt of the ſpring-tides is three days after the full or change, ſo the loweſt of the neap is four days before the full or change. On which occaſion the ſeamen ſay that it is deep neap.

NEAPED, *part. adj.* When a ſhip wants water, ſo that ſhe cannot get out of the harbour, off the ground, or out of the dock, the ſeamen ſay ſhe is *neaped*, or *beneaped*.

NEAPOLI, a town of Sardinia.

(1.) NEAPOLIS, in ancient geography, a city of Italy, in Campania, on the Sebethus, called alſo Parthenopa, originally a colony from Cumæ, (*Velleius, Pliny, Strabo.*), accounted a Greek city, and a great ſtickler for Greek uſages. (See *Livy*, and *Tacitus*.) Its hot baths were not inferior to thoſe of Baiæ, according to Strabo; two miles from it ſtands the monument of *Virgil*. It is now called *Naples*. See Naples, N° II.

(2.—13.) Neapolis was alſo the name of 12 other ancient cities: viz. 1. A city of Egypt, in the Nomos Panopolitanus, between Thebæ to the S. and Panopolis to the N. on the E. ſide of the Nile; otherwiſe called *Caene*: 2. in Babylonia, near the Euphrates on the S. ſide: 3. in Caria, near the Meander, (*Ptolemy.*) 4. in Cyrenaica, between Ptolemais and Arſinoe: (*Ptolemy.*) 5. Neapolis or *Cænopolis*, on the E. border of the ſame province: (*Id.*) 6. in Ionia; (*Strabo.*) which belonged firſt to the Epheſians, but afterwards to the Samians, who exchanged Maratheſium, a more diſtant city, for it: 7. in Macedonia Adjecta, 12 miles E. of Philippi: (*Antonine.*) 8. in Piſidia, on the borders of Galatia, between Amblada and Pappa: (*Ptolemy.*) 9. in Samaria, the ancient Sichem, which ſee; called *Neapolis* upon its reſtoration by the Romans: (*Pliny, Joſephus.*) 10. in

Sardinia, on the SW. ſide of the iſland, 30 miles N. of Metalla; now called Neapoli: 11. in Regio Syrtica, called alſo *Leptis:* 12. in Zeugitana on the Mediterranean, E. of Clypea, and S. of the Promontorium Mercurii.

(1.) NEAPOLITAN. *adj.* Of or from Naples.

(2.) Neapolitan Republic, a ſhort lived democratic State of Italy, erected by the French, upon the flight of the royal family of Naples, and conſequent ſuſpenſion of the monarchy, in Jan. 1799. It was divided into 11 departments, called *Veſuvius, Peſcara, Garigliano, Volturno, Sangro, Ofanto, Selo, Idro, Brandano, Crati,* and *Sagra,* from its chief rivers and mountains. It was overthrown in March following. See Naples, § 12.

(3.) Neapolitan yellow. See Yellow.

Neapolitans, the people of Naples.

(1.) * NEAR. *prep.* [*ner,* Sax.; *naer,* Dutch and Scottiſh.] At no great diſtance from; cloſe to; nigh; not far from. It is uſed both of place and time.—

No grief did ever come ſo *near* thy heart,
As when thy lady and thy true love died.
Shakeſp.

Thou thought'ſt to help me, and ſuch thanks I give,
As one *near* death to thoſe that wiſh him live.
Shak.

With blood, the dear alliance ſhall be bought,
And both the people *near* deſtruction brought.
Dryden.

To the warlike ſteed thy ſtudies bend,
Near Piſa's flood the rapid wheels to guide.
Dryden's Virg.

—This child was very *near* being excluded out of the ſpecies of man, barely by his ſhape. *Locke.*

(2.) * Near. *adj.* 1. Not diſtant in place, or time. [Sometimes it is doubtful whether *near* be an adjective or adverb.]—This city is *near* to flee unto. *Gen.* xix. 20.—Accidents, which, however dreadful at a diſtance, at a *nearer* view loſt much of their terrour *Fell.*—The will, free from the determination of ſuch deſires, is left to the purſuit of *nearer* ſatisfactions. *Locke.*—After he has continued his doubling in his thoughts, and enlarged his idea as much as he pleaſes, he is not one jot *nearer* the end of ſuch addition than at firſt ſetting out. *Locke.*—

Whether they *nearer* lived to the bleſt times,
When man's Redeemer bled for human crimes.
Harte.

2. Advanced towards the end of an enterpriſe or diſquiſition.—Unleſs they add ſomewhat elſe to define more certainly what ceremonies ſhall ſtand for beſt, in ſuch ſort that all churches in the world ſhould know them to be the beſt, and ſo know them that there may not remain any queſtion about this point; we are not a whit the *nearer* for all that they have hitherto ſaid. *Hooker.* 3. Direct; ſtraight; not winding.—

Taught to live the *neareſt* way. *Milton.*

To meaſure life, learn then betimes, and know,
Tow'rd ſolid good what leads the *neareſt* way.
Milton.

4. Cloſe; not rambling; obſervant of ſtile or manner of the thing copied.—Hannibal Caro's, in the Italian, is the *neareſt,* the moſt poetical, and the moſt ſonorous of any tranſlation of the Æneid. *Dryden.* 5. Cloſely related.—If one ſhall approach to any that is *near* of kin to him. *Lev.* xviii. 6. 6. Intimate; familiar; admitted to confidence.—If I had a ſuit to maſter Shallow, I would humour his men with the imputation of being *near* their maſter. *Shakeſp.* 7. Touching; preſſing; affecting; dear.—

Ev'ry minute of his being thruſts
Againſt my *near'ſt* of life. *Shak. Macbeth.*

—He could never judge that it was better to be deceived than not, in a matter of ſo great and *near* concernment. *Locke.* 8. Parſimonious, inclining to covetouſneſs; as a *near* man.

(3.) * Near. *adv.* 1. Almoſt.—

Whoſe fame by every tongue is for her minerals hurl'd,
Near from the mid-day's point throughout the weſtern world. *Drayton.*

2. At hand; not far off. Unleſs it be rather in this ſenſe an adjective.—Thou art *near* in their mouth, and far from their reins. *Jer* xii. 2.—

He ſerv'd great Hector, and was ever *near,*
Not with his trumpet only, but his ſpear. *Æn.*

3. Within a little.—Self-pleaſing and humorous minds are ſo ſenſible of every reſtraint, as they will go *near* to think their girdles and garters to be bonds and ſhackles. *Bacon's Eſſays.*—This eagle ſhall go *near,* one time or other, to take you for a hare. *L'Eſtrange.*—He that paid a buſhel of wheat per acre, would pay now about L 25 per annum; which would be *near* about the yearly value of the land. *Locke.*—The Caſtilian would rather have died in ſlavery than paid ſuch a ſum as he found would go *near* to ruin him. *Addiſon.*

(4.) * Near hand. Cloſely; without acting or waiting at a diſtance.—The entering *near hand* into the manner of performance of that which is under deliberation, hath overturned the opinion of the poſſibility or impoſſibility. *Bacon.*

NEARCHUS, a celebrated admiral under Alexander the Great, who navigated the Indian Ocean. See India, § 4. He wrote a *Journal of the voyage,* which is extant, and was lately tranſlated into Engliſh, with learned notes and diſſertations by Dr Vincent. He was much eſteemed and honoured by Alexander; (ſee Macedon, § 15;) and, after his death, was appointed governor of Pamphylia and Lycia.

NEARDIA, a race of Africans, who inhabit the mountains of Jibbel Aurez, in Algiers. Mr Bruce ſays, they are much fairer in the complexion than any of the nations to the S. of Britain: their hair is red, and their eyes blue: they maintain their independence, and are of a ſavage diſpoſition, ſo that our traveller found it difficult to approach them with ſafety. Each of them has a Greek croſs in the middle between the eyes, marked with antimony. They are divided into tribes, but, unlike the other Arabs, have huts in the mountains built of mud and ſtraw; and are, by our author, ſuppoſed to be a remnant of the Vandals. He even thinks that they may be deſcended from the remainder of an army of Vandals mentioned by Procopius, which was defeated among theſe mountains. They live in perpetual wars with the Moors, and boaſt that their anceſtors were Chriſtians. They pay no taxes.

* NEARLY. *adv.* [from *near.*] 1. At no great

diſtance; not remotely.—Many are the enemies of the prieſthood; they are diligent to obſerve whatever may *nearly* or remotely blemiſh it. *Atterbury*. 2. Cloſely; preſſingly.—

Nearly it now concerns us, to be ſure
Of our omnipotence. *Milton*.

—It concerneth them *nearly*, to preſerve that government which they had truſted with their money. *Swift*. 3. In a niggardly manner.

* NEARNESS. *n. ſ.* [from *near*.] 1. Cloſeneſs; not remoteneſs; approach.—God, by reaſon of *nearneſs*, forbade them to be like the Canaanites or Egyptians. *Hooker*.—Delicate ſculptures be helped with *nearneſs*, and groſs with diſtance. *Wotton*.—Thoſe bleſſed ſpirits that are in ſuch a *nearneſs* to God, may well be all fire and love. *Duppa*.—The beſt rule is to be guided by the *nearneſs* or diſtance at which the repetitions are placed in the original. *Pope*. 2. Alliance of blood or affection.—There may be many reports in hiſtory, that upon the death of perſons of ſuch *nearneſs*, men have had an inward feeling of it. *Bacon*. 3. Tendency to avarice; caution of expence.—It ſhews in the king a *nearneſs*, but yet with a kind of juſtneſs. *Bacon*.

(1.) * NEAT. *adj.* [*net*, French, *nitidus*, Latin.] 1. Elegant, but without dignity.—The thoughts are plain, yet admit a little quickneſs and paſſion; the expreſſion humble, yet as pure as the language will afford; *neat*, but not florid; eaſy, and yet lively. *Pope*. 2. Cleanly.—

Herbs and other country meſſes,
Which the *neat* handed Phyllis dreſſes. *Milton*.

—If you were to ſee her, you would wonder what poor body it was that was ſo ſurpriſingly *neat* and clean. *Law*. 3. Pure; unadulterated; unmingled; now uſed only in the cant of trade, but formerly more extenſive.—

Tuns of ſweet old wines along the wall;
Neat and divine drink. *Chapman*.
Our old wine, *neat*. *Chapman*.

(2.) * Neat. *n. ſ.* [*neat*, *nyten*, Saxon; *naut*, Iſlandick and Scottiſh.] 1. Black cattle; oxen. It is commonly uſed collectively.—

The ſteer, the heifer, and the calf,
Are all called *neat*. *Shak*.

—Smoak preſerveth fleſh; as we ſee in bacon, *neats* tongues, and martlemas beef. *Bacon*.—

His droves of aſſes, camels, herds of *neat*,
And flocks of ſheep, grew ſhortly twice as great. *Sandys*.
What care of *neat*, or ſheep is to be had,
I ſing Mecænas. *May's Virgil*.
Some kick'd until they can feel, whether
A ſhoe be Spaniſh or *neats* leather. *Hudibras*.
As great a drover, and as great
A critic too, in hog or *neat*. *Hudibras*.

—Set it in rich mould, with *neats* dung and lime. *Mortimer*. 2. A ſingle cow or ox.—

Who both by his calf and his lamb will be known,
May well kill a *neat* and a ſheep of his own. *Tuſſer*.
Go and get me ſome repaſt.—
What ſay you to a *neat's* foot? *Shak*.

(3.) Neat, or Net Weight, the weight of a commodity alone, clear of the caſk, bag, caſe, or even filth. See Net.

(1.) NEATH, a river of S. Wales, in Brecknock and Glamorgan ſhires, which runs into the Briſtol Channel, a little below Swanſea.

(2.) Neath, a large, ancient, and populous town of S. Wales, in Glamorganſhire, ſeated on the above river, over which it has a bridge, with a good harbour. The ruins of its ancient caſtle and monaſtery are ſtill to be ſeen. The book belonging to the latter is kept in proper repair. The town is governed by a portreeve, aldermen, &c. It has markets on Wedneſday and Saturday, and exports annually from 60 to 70,000 chaldrons of coals, to Somerſet, Devon, Cornwall, &c. It has two extenſive copper works, and ſeveral iron works. A navigable canal, twelve miles long, has been lately cut to Breconſhire; and it has a conſtant trade with London and Briſtol. It is ſeated near the Briſtol Channel, 9 miles NE. of Swanſea, 22 NW. of Llandaff, and 200 W. by N. of London. Lon. 3. 47. W. Lat. 51. 37. N.

* NEATHERD. *n. ſ.* [*neathyrd*, Saxon.] A cowkeeper; one who has the care of black cattle. Βουκολος, *bubulcus*.—

There *neatherd* with cur and his horn,
Be a fence to the meadow and corn. *Tuſſer*.
The ſwains and tardy *neatherds* came, and laſt
Menalcas, wet with beating winter maſt. *Dryden*.

* NEATLY. *adv.* [from *neat*.] 1. Elegantly, but without dignity; ſprucely.—I will never truſt a man again for keeping his ſword clean; nor believe he can have every thing in him, by wearing his apparel *neatly*. *Shak*.—

To love an altar built,
Of twelve vaſt French romances *neatly* gilt. *Pope*.

2. Cleanlily.

* NEATNESS. *n. ſ.* [from *neat*.] 1. Spruceneſs; elegance without dignity.—Pelagius carped at the curious *neatneſs* of men's apparel. *Hooker*. 2. Cleanlineſs.

NEATTIE LOCH, a lake of Inverneſs-ſhire, one mile long and half a mile broad, which runs by a rivulet ſo named into the Beauly.

(1.) NEB, a river in the Iſle of Man, which runs into the Iriſh Sea, at Peel-town.

(2.) * Neb. *n. ſ.* [*nebbe*, Saxon.] 1. Noſe; beak; mouth. Retained in the north.—

How ſhe holds up the *neb!* the bill to him.
And arms her with the boldneſs of a wife. *Shak*.

—Take a glaſs with a belly and a long *neb*. *Bacon*. 2. [In Scotland.] The bill of a bird. See Nib.

NEBAH, one of the Abarim mountains.

NEBAJOTH, the eldeſt ſon of Ishmael, and progenitor of the Nabatenes. They were friendly to the Jews, and were more civilized than their neighbours, though accuſed by Diodorus of plundering. See Nabatæi and Nabatenes.

NEBEL. See Nablum.

NEBIO. See Nebbio.

(1, 2.) NEBO, in ancient geography, a very high mountain, a part of the mountains Abarim and their higheſt top, whither Moſes was ordered to aſcend to take a view of the land of Canaan and there die. Situated in the land of Moab, over againſt Jericho; with a cognominal town at its foot (*Iſaiah*) belonging to the Reubenites, which afterwards returned to the Moabites; in Jerome's time deſolate; eight miles S. of Heſhbon.

(1.) Nib-

(3.) NEBO, or NABO. See NABO.

NEBUCHADNEZZAR, or NABUCHODONO- r, the ſecond king of BABYLONIA, ſon of Na- polaſſar, and ſtyled the GREAT, was aſſociated y his father in the empire, 607 A. A. C. and the ollowing year he took Jehoiakim king of Judah riſoner, and propoſed to carry him and his ſub- ects in captivity into Babylon; but upon his ſub- iſſion, and promiſing to hold his kingdom under ebuchadnezzar, he was permitted to remain at eruſalem. In 603 Jehoiakim attempted to ſhake ff the Babylonian yoke, but without ſucceſs; nd this revolt brought on the general captivity. ebuchadnezzar alſo ſubdued the Ethiopians, rabians, Idumæans, Philiſtines, Syrians, Perſians, Medes, Aſſyrians, and almoſt all Aſia. Being puffed p with pride, he cauſed a golden ſtatue to be ſet p, and commanded all to worſhip it; which Daniel's companions refuſing to do, they were caſt nto the fiery furnace. But as he was admiring is own magnificence, by divine ſentence he was driven from men, and in the Scripture ſtyle is ſaid o have eaten graſs as oxen; i. e. he was ſeized with the diſeaſe called by the Greeks *lycanthropy*, which is a kind of madneſs that cauſes perſons to un into the fields and ſtreet in the night, and ſometimes to ſuppoſe themſelves to have the head of oxen, or to be made of glaſs. At the end of ſeven years his reaſon returned to him, and he was reſtored to his throne and glory. He died A. A. C. 562, in the 43d year of his reign; in the 5th of which happened that eclipſe of the ſun mentioned by Ptolemy, which is the ſureſt foundation of the chronology of his reign.

(1.) * NEBULA. *n. ſ.* [Latin.] It is applied to appearances like a cloud in the human body; as alſo to films upon the eyes.

(2.) NEBULÆ, in aſtronomy. See ASTRONOMY, *Index.*

NEBULEE. See NEBULY.

(1.) NEBULOUS. *adj.* [*nebuloſus*, Latin.] Miſty; cloudy.

(2.) NEBULOUS STRATA. See ASTRONOMY, § 233—242.

NEBULY, in heraldry, is when a coat is charged with ſeveral little figures, in form of words running within one another, or when the outline of a bordure, ordinary, &c. is indented or waved.

NEBUZAR-ADAN, captain of the guard to Nebuchadnezzar, and the commander of his army in the final ſiege and deſtruction of Jeruſalem. See 2 Kings xxv. 8—21.

* NECESSARIES. *n. ſ.* [from *neceſſary.*] Things not only convenient, but needful; things not to be left out of daily uſe. *Quibus doleat natura negatis.* —The ſupernatural *neceſſaries* are, the preventing, aſſiſting, and renewing grace of God. *Hammond.*—We are to aſk of God ſuch *neceſſaries* of life as are needful to us. *Duty of Man.*—The right a ſon has to be maintained and provided with the *neceſſaries* and conveniencies of life, out of his father's ſtock, give him a right to ſucceed to his father's property for his own good. *Locke.*

* NECESSARILY, *adv.* [from *neceſſary.*] 1. Indiſpenſably.—I would know by ſome ſpecial inſtance, what one article of Chriſtian faith, or what duty required *neceſſarily* unto all men's ſalvation there is, which the very reading of the word of God is not apt to notify. *Hooker.*—Every thing is endowed with ſuch a natural principle, whereby it is *neceſſarily* inclined to promote its own preſervation and well-being. *Wilkins.* 2. By inevitable conſequence.—They who recall the church unto that which was at the firſt, muſt *neceſſarily* ſet bounds and limits unto their ſpeeches. *Hooker.* 3. By fate; not freely.—The church is not of ſuch a nature as would *neceſſarily*, once begun, preſerve itſelf for ever. *Pearſon.*—They ſhould have reſolved the neceſſity of all inferior events into the free determination of God himſelf, who executes *neceſſarily* that which he firſt propoſed freely. *South.*

* NECESSARINESS. *n. ſ.* [from *neceſſary.*] The ſtate of being neceſſary.

* NECESSARY. *adj.* [*neceſſarius*, Latin.] 1. Needful; indiſpenſably requiſite.—It will be *neceſſary* to declare what is this holineſs which maketh men be accounted holy ones, and called ſaints. *Pearſon.*—

All greatneſs is in virtue underſtood;
'Tis only *neceſſary* to be good. *Dryden.*

—A certain kind of temper is *neceſſary* to the pleaſure and quiet of our minds, conſequently to our happineſs. *Tillotſon.*—The Dutch would go on to challenge the military government and the revenues, and reckon them among what ſhall be thought *neceſſary* for their barrier. *Swift.* 2. Not free; fatal; impelled by fate.—

Death, a *neceſſary* end,
Will come when it will come. *Shak.*

3. Concluſive; deciſive by inevitable conſequence. —They reſolve us not what they underſtand by the commandment of the word; whether a literal and formal commandment, or a commandment inferred by any *neceſſary* inference. *White.*—No man can ſhew by any *neceſſary* argument, that it is naturally impoſſible that all the relations concerning America ſhould be falſe. *Tillotſon.*

* *To* NECESSITATE. *v. a.* [from *neceſſitas*, Latin.] To make neceſſary; not to leave free; to exempt from choice.—Haſt thou proudly aſcribed the good thou haſt done to thy own ſtrength, or imputed thy ſins and follies to the *neceſſitating* and inevitable decrees of God? *Duppa's Rules for Devotion.*—The marquis of Newcaſtle, being preſſed on both ſides, was *neceſſitated* to draw all his army into York. *Clarendon.*—

No decree of mine
Concurring to *neceſſitate* his fall. *Milton.*
Our voluntary ſervice he requires,
Not our *neceſſitated.* *Milton.*

—Neither the Divine Providence, nor his determinations, perſuaſions, or inflexions of the underſtanding, or will of rational creatures doth deceive the underſtanding, or pervert the will, or *neceſſitate* or incline either to any moral evil. *Hale.*—The politician never thought that he might fall dangerouſly ſick, and that ſickneſs *neceſſitate* his removal from the court. *South.*—

Th' Eternal, when he did the world create
And other agents did *neceſſitate*;
So what he order'd they by nature do. *Dryden.*

—The perfections of any perſon may create our veneration; his power, our fears; and his authority ariſing thence, a ſervile and *neceſſitated* obediences but love can be produced only by kindneſs. *Rogers.*

* NECESSITATION. *n. ſ.* [from *neceſſitate.*] The act of making neceſſary; fatal compulſion.—This neceſſity, grounded upon the *neceſſitation* of a man's will without his will, is ſo far from leſſening thoſe difficulties which flow from the fatal deſtiny of the ſtoics, that it increaſeth them. *Bram. againſt Hob.*—Where the law doth not name a certain heir, there is no *neceſſitation* to one, and there they have power or liberty to chooſe. *Bram. againſt Hobbes.*

* NECESSITIED. *adj.* [from *neceſſity.*] In a ſtate of want. Not uſed.—

This ring was mine, and when I gave it Helen,
I bade her, if her fortune ever ſtood
Neceſſitied to help, that by this token
I would relieve her. *Shak. All's Well.*

* NECESSITOUS. *adj.* [from *neceſſity.*] Preſſed with poverty.—They who were envied, found no ſatisfaction in what they were envied for, being poor and *neceſſitous. Clarendon.*—In legal ſeiſures, and righting himſelf on thoſe, who, though not perfectly inſolvent, are yet very *neceſſitous*, a good man will not be haſty in going to extremities. *Kettlewell.*—There are multitudes of *neceſſitous* heirs and penurious parents, perſons in pinching circumſtances, with numerous families of children. *Arb.*

* NECESSITOUSNESS. *n. ſ.* [from *neceſſitous.*] Poverty; want; need. Univerſal peace is demonſtration of univerſal plenty; for where there is want and *neceſſitouſneſs*, there will be quarrelling. *Burnet's Theory.*

* NECESSITUDE. *n. ſ.* [from *neceſſitudo*, Latin.] 1. Want; need.—The mutual *neceſſitudes* of human nature neceſſarily maintain mutual offices between them. *Hale's Origin of Mankind.*

NECESSITUDINARY. *adj.* belonging to friendſhip, relation, &c. *Bailey.*

(1.) * NECESSITY. *n. ſ.* [*neceſſitas*, Latin.] Cogency; compulſion; fatality.—

Neceſſity and chance
Approach not me; and what I will is fate. *Milt.*

—Though there be no natural *neceſſity*, that ſuch things muſt be ſo, and that they cannot poſſibly be otherwiſe, without implying a contradiction; yet they may be ſo certain as not to admit of any reaſonable doubt concerning them. *Wilkins.* 2. State of being neceſſary; indiſpenſableneſs.—

Urge the *neceſſity* and ſtate of times. *Shak.*

—Racine uſed the chorus in his Eſther, but not that he found any *neceſſity* of it. *Dryden.*—We ſee the *neceſſity* of an augmentation to bring the enemy to reaſon. *Addiſon.*—3. Want; need; poverty.—

The art of our *neceſſities* is ſtrange,
That can make vile things precious. *Shak.*

—The cauſe of all the diſtractions in his court or army proceeded from the extreme poverty and *neceſſity* his majeſty was in. *Clarendon.*—We are firſt to conſult our own *neceſſities*, but then the *neceſſities* of our neighbours have a Chriſtian right to a part of what we have to ſpare. *L'Eſtrange.* 3. Things neceſſary for human life.—

Theſe ſhould be hours for *neceſſities*,
Not for delights. *Shak. Henry VIII.*

—Great part of the world are free from the *neceſſities* of labour and employment, and have their time and fortunes in their own diſpoſal. *Law.* 4. Cogency of argument; inevitable conſequence.—There never was a man of ſolid underſtanding, whoſe apprehenſions are ſober, and by a penſive inſpection adviſed, but that he hath found by an irreſiſtible *neceſſity*, one true God and everlaſting being. *Raleigh's Hiſtory.*—Good nature, or beneficence and candour, is the product of right reaſon; which of *neceſſity* will give allowance to the failings of others. *Dryden.* 6. Violence; compulſion.—

Never ſhall
Our heads get out; if once within we be,
But ſtay compell'd by ſtrong *neceſſities. Chapm.*

(2.) NECESSITY, in law (§ 1. *def.* 1. 6.) a implies a defect of will, excuſes from the gu crimes. See CRIME. "*Compulſion* and inevi *neceſſity* are a conſtraint upon the will, whereby man is urged to do that which his judgment approves; and which, it is to be preſumed, will (if left to itſelf) would reject. As pun ments are therefore only inflicted for the abuſe that free will which God has given to man, highly juſt, that a man ſhould be excuſed thoſe acts which are done through unavoida compulſion. 1. Of this nature, in the firſt pla is the obligation of *civil ſubjection*, whereby inferior is conſtrained by the ſuperior to act trary to what his own reaſon and inclina would ſuggeſt; as when a legiſlator eſtabli iniquity by a law, and commands the ſubje do an act contrary to religion or ſound mor How far this excuſe will be admitted in *conſcientiæ*, or whether the inferior in this ca is not bound to obey the divine rather tha human law, it is not our buſineſs to dec though, among caſuiſts, the queſtion will bear a doubt. But obedience to the laws in is undoubtedly a ſufficient extenuation of guilt before the municipal tribunal. The who burnt Latimer and Ridley, in the beg days of Q. Mary I. was not liable to puni from Elizabeth for executing ſo horrid an being juſtified by the command of that tracy which endeavoured to reſtore ſuperſti under the holy auſpices of its mercileſs Perſecution. As to perſons in private rela the principal caſe, where conſtraint of a ſup is allowed as an excuſe for criminal miſco is with regard to the matrimonial ſubject the wife to her huſband; for neither a ſon ſervant are excuſed for the commiſſion of crime, whether capital or otherwiſe, by the mand or coercion of the parent or maſter; in ſome caſes the command or authority huſband, either expreſs or implied, will pr the wife from puniſhment, even for capi fences. And, therefore, if a woman comm burglary, or other civil offences, by the co of her huſband, or even in his company, the law conſtrues a coercion, ſhe is not g any crime, being conſidered as acting by pulſion; which doctrine is at leaſt 100 old in this kingdom, being to be found the laws of Ina the Weſt-Saxon. And amo northern nations on the continent, this p extended to any woman tranſgreſſing with a man, and to any ſervant that a joint offence with a freeman; the male an only was puniſhed, the female or ſlave diſ-itted. But (beſides that, in the Engliſh law, hich is a ſtranger to ſlavery, no impunity is gi-en to ſervants, who are as free agents as their aſters), even with regard to wives, this rule ad-its of an exception in crimes that are *mala in ſe*, nd prohibited by the law of nature, as murder, nd the like: not only becauſe they are of a eeper dye; but alſo, ſince in a ſtate of nature no ne is in ſubjection to another, it would be un-eaſonable to ſcreen an offender from the puniſh-ent due to natural crimes, by the refinements nd ſubordinations of civil ſociety. In treaſon lſo, (the higheſt crime which a member of ſociety an, as ſuch, be guilty of), no plea in coverture hall excuſe the wife; no preſumption of the huſ-and's coercion ſhall extenuate her guilt; as well ecauſe of the odiouſneſs and dangerous conſe-uence of the crime itſelf, as becauſe the huſband, aving broken through the moſt ſacred tie of ſo-ial community by rebellion againſt the ſtate, has o right to that obedience from a wife, which he imſelf as a ſubject has forgotten to pay. In in-erior miſdemeanors alſo, a wife may be indicted nd ſet in the pillory with her huſband, for keep-ng a brothel: for this is an offence touching the omeſtic economy or government of the houſe, n which the wife has a principal ſhare; and is lſo ſuch an offence as the law preſumes to be ge-erally conducted by the intrigues of the female ex. And in all caſes where the wife offends a-one, without the company or coercion of her uſband, ſhe is reſponſible for her offence as uch as any *femme ſole*. 2. Another ſpecies of ompulſion or neceſſity is what the law calls *ureſs per minas*; or threats and menaces, which nduce a fear of death or other bodily harm, and hich take away for that reaſon the guilt of many rimes and miſdemeanors, at leaſt before the hu-an tribunal. But then that fear which compels man to do an unwarrantable action, ought to be uſt and well grounded; ſuch, *qui cadere poſſit virum conſtantem, non timidum et meticuloſum*," s Bracton expreſſes it, in the words of the civil w. Therefore, in time of war or rebellion, a an may be juſtified in doing many treaſonable cts by compulſion of the enemy or rebels, which ould admit of no excuſe in the time of peace. his, however, ſeems only, or principally, to old as to poſitive crimes, ſo created by the laws f ſociety; and which therefore ſociety may ex-uſe: but not as to natural offences, ſo declared y the law of God, wherein human magiſtrates re only the executioners of divine puniſhment. nd therefore though a man be violently aſſaulted, nd hath no other poſſible means of eſcaping eath but by killing an innocent perſon, this fear nd force ſhall not acquit him of murder; for he ught rather to die himſelf than eſcape by the urder of an innocent. But in ſuch a caſe he is ermitted to kill the aſſailant; for there the law f nature, and ſelf-defence, its primary canon, ave made him his own protector. 3. There is a d ſpecies of neceſſity, which may be diſtinguiſhed rom the actual compulſion of external force or ear, being the reſult of reaſon and reflection, which act upon and conſtrain a man's will, and blige him to do an action which without ſuch obligation would be criminal; and that is, when a man has a choice of two evils ſet before him, and, being under a neceſſity of chooſing one, he chooſes the leaſt pernicious of the two. Here the will cannot be ſaid freely to exert itſelf, being rather paſſive than active; or, if active, it is rather in rejecting the greater evil than in chooſing the leſs. Of this ſort is that neceſſity, where a man by the commandment of the law is bound to arreſt another for any capital offence, or to diſperſe a riot, and reſiſtance is made to his authority: it is here juſtifiable, and even neceſſary, to beat, to wound, or perhaps to kill, the offenders, rather than permit the murderer to eſcape, or the riot to continue; for the preſervation of the peace of the kingdom, and the apprehending of notorious malefactors, are of the utmoſt conſequence to the public, and therefore excuſe the felony, which the killing would otherwiſe amount to. 4. There is yet another caſe of neceſſity, which has occaſioned great ſpeculation among the writers upon general law, viz. whether a man in extreme want of food or clothing may juſtify ſtealing either, to relieve his preſent neceſſities. And this both Grotius and Puffendorf, with many other foreign juriſts, hold in the affirmative; maintaining by many ingenious, humane, and plauſible reaſons, that in ſuch caſes the community of goods, by a kind of tacit conceſſion of ſociety, is revived. And even ſome Engliſh lawyers have held the ſame; though it ſeems to be an unwarranted doctrine, borrowed from the notions of ſome civilians; at leaſt the law of England admits no ſuch excuſe at preſent. And this its doctrine is agreeable, not only to the ſentiments of many of the wiſeſt ancients, particularly Cicero, who holds, That *ſuum cuique incommodum ferendum eſt, potius quam de alterius commodis detrahendum*; but alſo to the Jewiſh law, as certified by Solomon himſelf, "If a thief ſteal to ſatisfy his ſoul when he is hungry, he ſhall reſtore ſevenfold, and ſhall give all the ſubſtance of his houſe;" which was the ordinary puniſhment for theft in that kingdom. And this is founded upon the higheſt reaſon; for men's properties would be under a ſtrange inſecurity, if liable to be invaded according to the wants of others; of which wants no man can poſſibly be an adequate judge, but the party himſelf who pleads them. In England eſpecially, there would be a peculiar impropriety in admitting ſo dubious an excuſe; for by the laws ſuch ſufficient proviſion is made for the poor by the power of the civil magiſtrate, that it is impoſſible that the moſt needy ſtranger ſhould ever be reduced to the neceſſity of thieving to ſupport nature. The caſe of a ſtranger is, by the way, the ſtrongeſt inſtance put to Baron Puffendorf; and whereon he builds his principal arguments: which, however they may hold upon the continent, where the parſimonious induſtry of the natives orders every one to work or ſtarve, yet muſt loſe all their weight and efficacy in England, where charity is reduced to a ſyſtem, and interwoven in our very conſtitution. Therefore the Engliſh laws ought by no means to be taxed with being unmerciful, for denying this privilege to the neceſſitous; eſpecially when we conſider, that the king, on the repreſentation of his miniſters of juſtice, hath a power to ſoften the law, and to extend mercy in caſes of peculiar hardſhip; an advantage which is wanting in many ſtates, particularly thoſe which are democratical: and theſe have in its ſtead introduced and adopted, in the body of the law itſelf, a multitude of circumſtances tending to alleviate its rigour. But the founders of our conſtitution thought it better to veſt in the crown the power of pardoning particular objects of compaſſion, than to countenance and eſtabliſh theft by one general undiſtinguiſhing law. See PARDON.

(3.) NECESSITY, in metaphyſics, implies whatever is done by a cauſe or power that is irreſiſtible; in which ſenſe it is oppoſed to LIBERTY. Man is a neceſſary agent, if all his actions be ſo determined by the cauſes preceding each, that not one paſt action could poſſibly not have come to paſs, or have been otherwiſe than it hath been; nor one future action can poſſibly not come to paſs, or be otherwiſe than it ſhall be. But he is a free agent, if he be able, at any time, under the circumſtances and cauſes he then is, to do different things; or in other words, if he be not unavoidably determined in every point of time, by the circumſtances he is in, and the cauſes he is under, to do that one thing he does, and not poſſibly to do any other thing. Whether man is a neceſſary or a free agent, is a queſtion which has been debated with much ingenuity by writers of the firſt eminence, from Hobbes and Clarke, to Prieſtley and Gregory. See METAPHYSICS, *Sect.* XVIII, § 78; and PREDESTINATION.

(4.) NECESSITY, in mythology, a power ſuppoſed to be ſuperior to all other powers, and equally irreſiſtible by gods and by men. Herodotus, Heſiod, and Homer, teach that the gods were generated by *neceſſity*, of night and chaos. This power, tho' always repreſented as blind and unintelligent, was however worſhipped as a goddeſs, bearing in her hand large iron nails, wedges, anchors, and melted lead, as emblems of the inflexible ſeverity of her nature. "In the city of Corinth ſhe had a temple, in which the goddeſs *Violence* likewiſe reſided, and into which no perſon was ever permitted to enter but the prieſt who officiated *in ſacris*. See PARCÆ.

NECHIN, a village of France, in the department of the Scheldt, 7 miles ENE. of Courtray. Near it the French attacked the Britiſh under the D. of York, on the 28th Nov. 1793, but were repulſed with loſs.

NECHO I. king of Egypt, began to reign A. A. C. 690; and was killed 8 years after by Sabacon king of Ethiopia. Pſammiticus his ſon ſucceeded him, and was the father, as Herodotus informs us, of Necho II.

NECHO II. reigned A. A. C. 616, and is celebrated in hiſtory for attempting, though in vain, to cut a canal from the Nile to the Arabian gulf. See EGYPT, § 10. He carried his arms as far as the Euphrates, and conquered the city of Carchemiſh. This prince is known by the name of *Necho*, in profane hiſtory, as well as in ſcripture. He raiſed great land armies, and fitted out vaſt fleets, as well upon the Mediterranean as upon the Red Sea: he gave battle to the Syrians near the city of Migdol; routed them, and made himſelf maſter of the city of Cadytis. The learned, however, are not agreed about *Cadytis*. Some will have it to be GADES in Arabia Petræa; others Jeruſalem; and others ſay it is the city of Cedes, or Kedeſh, in Galilee, in the tribe of Naphtali. The ſcriptures acquaint us with the whole expedition of Necho in all its particulars. It happened A. M. 3394. See 2 Kings xxiii. 29, &c. and 2 Chr. xxxv. 20, 21, &c. See alſo Egypt, § 10. Jeremiah informs us, (ch. xlvi. 2.) that Carchemiſh was taken from Necho by Nebuchadnezzar; and Joſephus adds, that this monarch reduced the whole country between Egypt and the Euphrates; ſo that Necho's conqueſts were very ſhort-lived.

(1.) * NECK. *n. ſ.* [hnecca, Saxon; *neck*, Dutch.] 1. The part between the head and body.

He'll beat Aufidius' head below his knee,
And tread upon his *neck*. *Shak. Coriolanus.*

—The length of the face twice exceedeth that of the *neck*. *Brown's Vulg. Errours.*—

She clapp'd her leathern wing againſt your tow'rs,
And thruſt out her long *neck*. *Dryden.*

—I look on the tucker to be the ornament and defence of the female *neck*. *Addiſon.* 2. A long narrow part.—The acceſs of the town was only by a *neck* of land. *Bacon.*—

Thou walk'ſt as on a narrow mountain's *neck*,
A dreadful height. *Dryden.*

3. *On the* NECK; immediately after; from one following another cloſely.—

He depos'd the king,
And, *on the neck* of that, tax'd the whole ſtate. *Shakeſp.*

—The ſecond way to aggregate ſin, is by addition of ſin to ſin, and that is done ſundry ways; firſt, by committing one ſin *on the neck* of another. *Perkins.*—Inſtantly *on the neck* of this came news, that Ferdinando and Iſabella had concluded a peace. *Bacon.* 4. *To break the neck* of an affair; to hinder any thing being done; or, to do more than half.

(2.) NECK, § 1. *def.* 1. See ANATOMY, *Index.*

(3.) NECK, (§ 1. *def.* 2.) in geog. See ISTHMUS.

NECKAM. See NECKHAM.

NECKAR, a river of Germany, which riſes in the Black Foreſt, croſſes the duchy of Wirtemburg, and part of the Palatinate of the Rhine; paſſes Tubingen, Effingen, Hailbron Heidelberg, &c. and falls into the Rhine at Manheim.

NECKAR'S GEMUND, a town of Germany, in the circle and palatinate of the Rhine. It was taken by ſtorm and plundered by the bloody Count Tilly, in 1622, and the people maſſacred. It is 5 miles E. of Heidelberg, and 42 N. of Stuttgart. Lon. 25. 29. E. Ferro. Lat. 49. 19. N.

* NECKATEE, NECKERCHIEF. *n. ſ.* A gorget; handkerchief for a woman's neck.

* NECKBEEF. *n. ſ.* [*neck* and *beef.*] The coarſe fleſh of the neck of cattle, ſold to the poor at a very cheap rate.—They'll ſell (as cheap as *neckbeef*) for counters. *Swift.*

* NECKCLOATH. *n. ſ.* [*neck* and *cloath.*] That which men wear on their neck.—

Will ſhe with huſwife's hand provide thy meat,
And ev'ry ſunday morn thy *neckcloth* plait? *Gay.*

NECKER. See NECKAR.

* **NECKERCHIEF.** See **NECKATEE.**

NECKER'S ISLAND, one of the VIRGIN Iſles.

NECKHAM, Alexander, an eminent Engliſh writer in the 12th and 13th centuries, born at St Alban's in Hertfordſhire. About 1180, he taught philoſophy with reputation at Paris. He was a good poet and a man of ſcience for his age. In 1215 he was made abbot of Exeter, and died in 1227. He wrote ſeveral works, which were never publiſhed; but they are to be found in MS. in the libraries of England and other countries.

* **NECKLACE.** *n. ſ.* [*neck* and *lace*.] An ornamental ſtring of beads or precious ſtones, worn by women on their neck.—Both men and women wore torques, chains, or *necklaces* of ſilver and gold ſet with precious ſtones. *Arbuth. on Coins.*—

Or loſe or heart, or *necklace*, at a ball. *Pope.*

* **NECKWEED.** *n. ſ.* [*neck* and *weed*.] Hemp: in ridicule.

NECOPHORON, in botany, a name uſed by Pliny and other authors for the SMILAX ASPERA, or *rough bind-weed*.

NECROLIUM, a word uſed by ſome of the alchemical writers to expreſs a remedy almoſt always capable of averting death, and continuing life to its utmoſt period.

NECROLOGY, *n. ſ.* [*necrologium* from νεκρος, *dead*, and λογος, *enumeration*.] a book anciently kept in churches and monaſteries, wherein were regiſtered the benefactors of the ſame, the time of their deaths, and the days of their commemoration; as alſo the deaths of the priors, abbots, religious canons, &c. This was otherwiſe called *calendar* and *obituary*.

* **NECROMANCER.** *n. ſ.* [νεκρος and μαντις.] One who by charms can converſe with the ghoſts of the dead; a conjurer; an inchanter.—I am employed like the general who was forced to kill his enemies twice over, whom a *necromancer* had raiſed to life. *Swift.*

(1.) * **NECROMANCY.** *n. ſ.* [νεκρος μαντις; *necromance*, Fr.] 1. The art of revealing future events by communication with the dead.—The reſurrection of Samuel is nothing but deluſion in the practice of *necromancy* and popular conception of ghoſts. *Brown.* 2. Enchantment; conjuration.—He did it partly by *necromancy*, wherein he was much ſkilled. *Abbot.*—

This palace ſtandeth in the air,
By *necromancy* placed there. *Drayton.*

(2.) **NECROMANCY**, (§ 1. *def.* 1.) is a ſuperſtitious and impious impoſture, which appears to have had its origin at a very early period in Egypt, and to have been thence propagated in every nation with the manners of which hiſtory has made us acquainted. The conqueſts of Seſoſtris might introduce it into India; the Iſraelites would naturally borrow it from the people among whom they ſojourned 400 years; and it would eaſily find its way into Phœnicia, from the vicinity of that country to the land of its nativity. From the Egyptians and Phœnicians it was adopted, with the other writes of paganiſm, by the Greeks; and it was imported into Rome with Grecian literature and manners. It ſpread itſelf through all the modern nations of Europe, and took ſuch deep root as to be long retained, even after thoſe nations were converted to the Chriſtian faith. Of its early antiquity we have complete evidence in the writings of Moſes, (Deut. xviii. 11, 12.) where it is ſeverely condemned as an abomination to the Lord; and though it appears to have been even then ſpread into Phœnicia, we may yet conclude its birth-place to have been Egypt, becauſe, at their *exody*, the Iſraelites were corrupted only by Egyptian ſuperſtitions, and becauſe necromancy was one of thoſe whoredoms which the prophet Ezekiel ſays they brought with them from Egypt, and continued to practiſe till they were carried captives into Babylon. Profane authors not only affirm Egypt to have been the birth-place of necromancy, but in ſome degree account for the origin of ſo impious a deluſion. From Diodorus the Sicilian (Lib. 1. § 2.) we learn, that the Grecian fables of *Charon*, the ferryman of hell, of *Styx*, *Cocytus*, the *Elyſian Fields*, *Tartarus*, the judgment of *Minos* and *Rhadamanthus*, &c. with the whole ſcenery of the infernal regions, were imported from Egypt into Greece. The ancient Egyptians, and indeed all the people of the eaſt, made uſe of caves for burying places, which were well ſuited to the ſolemn ſadneſs of the ſurviving friends, and proper receptacles for thoſe who were never more to behold the light. In Egypt, many of thoſe ſubterraneous cavities, being dug out of the natural rock, ſtill remain and command the admiration of travellers; and near to the pyramids in particular there are ſome apartments of a wonderful fabric, which though they extend in length 4400 feet, and are about 30 feet in depth, appear to have been, if not entirely dug, at leaſt reduced to form by the chizzel or pick-axe. From the practice of burying in ſuch caverns ſprung the opinion that the infernal manſions were ſituated ſomewhere near the centre of the earth, which by the Egyptians was believed to be not very diſtant from its ſurface. In theſe dreary manſions it was eaſy for the prieſts of Egypt to fabricate Erebus, Tartarus, the Elyſian Fields, and all thoſe ſcenes which were diſplayed before the initiated, (ſee MYSTERIES, § 39, 40.) and by them deſcribed to the people. That the Iſraelites, notwithſtanding the divine prohibition, continued to practiſe the rites of necromancy, is apparent from Saul's tranſaction with the witch of Endor. (See MAGIC, § 3, III.) From the ſame tranſaction, it is likewiſe apparent that the witches of Iſrael, and in all probability the necromancers of Egypt, pretended to raiſe the ghoſts of the dead by a *dæmon* or *familiar ſpirit*, which they had at their command to employ upon every emergency. This dæmon was called OB: and therefore Saul deſires his ſervants to find him a woman who was miſtreſs of an OB. But though the Egyptian prieſts were undoubtedly the inventors of necromancy, and though it was from them imported into Greece by the SELLI or prieſts of Dodona, it does not appear that the Grecian necromancers pretended to be maſters of OBS or familiar ſpirits. Mopſus, Orpheus, Linus, Eumolpus, &c. who either travelled into Egypt in queſt of knowledge, or were actually natives of that country, inſtructed the early Greeks in this occult ſcience: but whatever might be the practice of theſe apoſtles themſelves, their diſciples profeſſed to do all the feats of magic by performing certain rites, by offering certain ſacrifices,' by muttering a certain form of words, by charms, ſpells, and exorciſms. By theſe they pretended to evocate the dead as certainly as the Egyptians and Jews did by their *familiar ſpirits*. The popular ſtory of Orpheus and Eurydice, was founded on one of theſe necromantic deceptions exhibited in a cave near Dodona, where the prieſts had a *hades* or infernal manſion, in imitation of thoſe with which the firſt of them were well acquainted in Egypt. Virgil makes one of his ſhepherds, by means of certain herbs, poiſons, and ſenſeleſs charms, raiſe up ghoſts from the bottom of their graves; and Lucan, (Lib. vi. ver. 570.), before the battle of Pharſalia makes young Pompey travel by night to a Theſſalian ſorcereſs, and anxiouſly inquire of her the iſſue of the war. This female necromancer, by a tedious proceſs of charms and incantations, conjures up the ghoſt of a ſoldier who had been lately ſlain. The phantom, after a long preamble, denounces a prediction much of the ſame kind with that which Saul received from Samuel at Endor; and though we have elſewhere ſhown that nothing but the ſpirit of God could have foreſeen the inevitable deſtruction of Saul, his ſons, and his army, (ſee MAGIC, § III.) it was very eaſy for any man of tolerable ſagacity to foreſee the defeat of Pompey's raw and undiſciplined troops by the hardy veterans of the victorious Cæſar. Not many years ago ſome of the Highlanders relied implicitly upon certain oracular reſponſes, called in their language TAGHAIRM. This word ſeems to be compounded of *ta*, which in ſome parts of the Highlands is ſtill uſed to denote a ſpirit or ghoſt, and *ghairm*, which ſignifies *calling upon* or invoking. *Taghairm*, therefore, in its original import, is *necromancy* in the moſt proper ſenſe of that word. There were different kinds of *taghairm*, of which one was very lately practiſed in *Sky*. The diviner covered himſelf with a cow's hide, and repaired at night to ſome deep-ſounding cave, whither the perſon who conſulted him followed ſoon after without any attendants. At the mouth of the cave he propoſed aloud the queſtions of which he wanted ſolutions; and the man within pronounced the reſponſes in a tone of voice ſimilar to that with which the OBS, or pretended dæmons of antiquity, gave from beneath the ground their oracular anſwers. Another ſpecies, called *taghairm an uiſge*, or *taghairm by water*, was alſo laſt practiſed in the Iſle of Sky, by a man of the name of *M'Cuidhean*, whoſe anceſtors had long been famous for the art. He lived near a beautiful caſcade on a ſmall river; and when conſulted on any matter of conſequence, he covered his whole body with a cow's hide, and placed himſelf between the water of the caſcade and the rock over which it flowed. Then another man with a heavy pole gave repeated ſtrokes to the water; and the diviner behind it crying out now and then in Gaelic, "Is this a ſtock of arn?" This operation was continued till M'Cuidhean was perceived to be frantic or furious, when he was conſidered as in a condition to anſwer the moſt important queſtions. He was frequently conſulted about futurity; and though he could not, in the proper ſenſe of the word, be called a *necromancer*, his reſponſes were liſtened to as proceeding from ſomething more than human. A degree of frenzy, either real or affected, ſeems to have accompanied the predictions of certain kinds of diviners in all ages; and we cannot help remarking the ſimilarity between the madneſs of M'Cuidhean and that of the Sybil in the *Æneid*, lib vi. ver. 87—90. though we cannot ſuppoſe the former to have been borrowed from the latter. That all their pretences, whether ancient or modern, to the power of divination by means of familiar ſpirits, or by the art of necromancy, were groundleſs as well as impious, it is needleſs to offer any proof. Under the article MAGIC we have ſaid enough to thoſe who know that dæmons, if they have any exiſtence, and the departed ſpirits of good and bad men, are all under the controul of HIM who governs the intellectual as well as material world by fixed and equal laws. An exhibition was ſometime ago open at the Lyceum in the Strand, London, which the proprietor denominated *Phantaſmagoria*. With the common magic lanthorn alone, varying the uſe of it by placing the ſpectators behind inſtead of before the ſcreen, he imitated the imaginary forms of ſpectres, their unexpected appearance, their inſtantaneous vaniſhing, and all the other particulars, vulgarly ſaid to belong to the department of ghoſts, with the greateſt ſucceſs. His entertaining exhibitions demonſtrated the ſimplicity of the means by which necromancers have atchieved their moſt fearful exploits.

NECROPOLIS, a ſuburb of Alexandria in Egypt. The name ſignifies *the City of the Dead*; and contained temples, gardens, and ſuperb mauſoleums. (See ALEXANDRIA, § 10.) Here CLEOPATRA applied the aſpic to her breaſt, to prevent her being led in triumph by Auguſtus.

NECROSIS, (νεκρωσις) in medicine, a complete mortification of any part: called alſo SIDERATIO and SPHACELUS.

NECTANABIS, or NECTANEBUS I. } a king of Egypt, who defended his country againſt the Perſians.

NECTANEBUS II. grandſon of the preceding, made an alliance with Ageſilaus king of Sparta, and with his aſſiſtance, quelled a rebellion of his ſubjects. Some time after he was joined by the Sidonians, Phœnicians, and inhabitants of Cyprus, who had revolted from the king of Perſia. This powerful confederacy was ſoon attacked by Darius king of Perſia. Nectanebus, to defend his frontiers, levied 20,000 mercenary ſoldiers in Greece, as many in Libya, and 60,000 in Egypt. This numerous body was not equal to the Perſian forces, and Nectanebus, defeated in a battle, gave up all hopes of reſiſtance, and fled into Ethiopia, where he found a ſafe aſylum. Egypt became from that time tributary to the king of Perſia.

(1.) * NECTAR. *n. ſ.* [Lat.] Pleaſant liquor, ſaid to be drank by the heathen deities. [This article is inſerted in the 8vo edit. of Johnſon, but omitted in the laſt London fol. edit.]

(2.) NECTAR, was fabled to be the drink of the gods in contradiſtinction from their ſolid food, called AMBROSIA.

* NECTARED. *adj.* [from *nectar.*] Tinged with nectar; mingled with nectar; abounding with nectar.—

He gave her to his daughters to imbathe
In *nectar'd* lavers ſtrew'd with aſphodel. *Milton.*
A perpetual feaſt of *nectar'd* ſweets,
Where no crude ſurfeit reigns. *Milton.*
He with the Nais wont to dwell,
Leaving the *nectar'd* feaſts of Jove. *Fenton.*

* NECTAREOUS. *adj.* [*nectareus*, Latin.] Reſembling nectar; ſweet as nectar.—

Annual for me, the grape, the roſe renew
The juice *nectareous* and the balmy dew. *Pope.*

(1.) * NECTARINE. *adj.* [from *nectar.*] Sweet as nectar.—

To their ſupper fruits they fell;
Nectarine fruits. *Milton.*

(2.) * NECTARINE. *n.ſ.* [*nectarine*, French.] A fruit of the plum kind.—This fruit differs from a peach in having a ſmooth rind and the fleſh firmer. *Miller.*—The only *nectarines* are the murry and the French; of the laſt there are two ſorts, one, which is the beſt, very round, and the other ſomething long; of the murry there are ſeveral ſorts. *Temple.*

(3.) Nectarine, in botany. See Amygdalus, § 5; and Persica, N° 3.

NECTARIUM, [from *nectar,*] *n.ſ.* an appendage of the flowers of many plants, containing a ſweet liquor, ſucked by bees, &c. (See Botany, *Index.*) All flowers are not provided with it, neither is it eſſential to fructification. Linnæus is cenſured by ſome botaniſts, for terming the nectarium *a part of the corolla.* He might (it is ſaid) with equal propriety, have termed it a part of the ſtamina, calyx, or pointal, as it is confined to no particular part of the flower, but is as various in point of ſituation as of form. The term *nectarium* is indeed exceedingly vague; and, if any determinate meaning can be affixed to it, is expreſſive of all the ſingularities which are obſerved in the different parts of flowers. The tube, or lower part of flowers with one petal, Linnæus conſiders as a true nectarium, becauſe it is generally found to contain the ſweet liquor. This liquor Pontedera compares to that called amnios in pregnant animals, which enters the fertile or impregnated ſeeds: but that this is not its ſole uſe, is evident from this circumſtance, that it is found in flowers where there are either no ſeeds, or thoſe which, from the want of male organs, cannot be impregnated. Thus the male flowers of nettle and willow, the female flowers of ſea-ſide laurel and black bryony, the male and female flowers of clutia, higgelarid, and butcher's broom, all abound with this honey or nectar. Dr Vaillant was of opinion, that the nectarium was an eſſential part of the corolla; for which reaſon he diſtinguiſhed the ſingular appearances in fennel-flower and columbine by the name of *petals:* the coloured leaves now termed *petals* he denominated *flower cups.* That the nectarium, however, is often diſtinct from the petals, is evident, both from theſe examples, and from the flowers of monkſhood, hellebore, iſopyrum, fennel-flower of Crete, barren wort, graſs of Parnaſſus, chocolate-nut, cherleria, and ſauvageſia. Among the principal diverſities, both in form and ſituation, of this ſtriking appendage to the flower, we find, 1. In many flowers the nectarium ſhaped like a ſpur or horn, both in flowers of one petal, as valerian, water-milfoil (*utricularia*), butterwort, and calves-ſnout; and in ſuch as have more than one, as lark-ſpur, violet, fumatory, balſam, and orchis. 2. In the following, the nectarium is a part of the corolla, lying within the ſubſtance of the petals; ranunculus, lily, iris, crown-imperial, water-leaf, mouſe-tail, ananas or pine-apple, dog's-tooth violet, piperidge buſh, valliſneria, hermannia, uvularia, and ſwertia. 3. It is often placed in a ſeries within the petals. (See Botany, § 147, 6.) The following are examples: daffodil, ſea-daffodil, campion, viſcous campion, ſwallow-wort, ſtapelia, cynanchum, nepenthes, cherleria, balſam-tree, African ſpiræa, witch-hazel-olax, and paſſion-flower. 4. In Indian creſs, buckler, muſtard, Barbadoes cherry, and monotropa, the nectarium is ſituated upon or makes part of the calyx. 5. In baſtard flower-fence it is ſeated upon the antheræ, whence the name *adenanthera*, or *glandular anthera*, given to this genus of plants. In the following it is placed upon the filaments; bean-caper, bay, fraxinella, marvel of Peru, bell-flower, lead-wort, roella, and commelina. 6. In hyacinth, flowering ruſh, ſtock July-flower and rocket, it is placed upon the ſeed-bud. 7. In honey-flower, orpine, buck-wheat, collinſonia, lathræa, navelwort, mercury, clutia, kiggelaria, ſea-ſide laurel, and African ſpiræa, it is attached to the common receptacle. 8. In ginger, nettle, dyer's weed, heart-ſeed, coſtus, turmeric, grewia, baſtard-orpine, vanelloe, ſkrew-tree, and willow, the nectarium is of a very ſingular conſtruction, and cannot properly fall under any of the foregoing heads. In diſcriminating the genera, the nectarium often furniſhes an eſſential character. Plants which have the nectarium diſtinct from the petals, *i. e.* not lodged within their ſubſtance, are ſaid, by Linnæus to be generally poiſonous. The following are adduced as examples; monk's hood, hellebore, columbine, fennel-flower, graſs of Parnaſſus, barren-wort, oleander, marvel of Peru, bean caper, ſucculent ſwallow-wort, fraxinella, and honey-flower.

NECUIA, in botany, a name given by the ancient Greeks to a ſpecies of mullein. The Greeks and Romans both uſed the ſtalks of a peculiar kind of mullein, called THRYALLIS by Nicander. For the making of wicks of lamps we have a kind of mullein called *lychnites*, and candle-wick mullein, from the λυχνιτις of Dioſcorides; but it is not certain that ours is the ſame plant. The ancients uſed the ſtalks of many different plants for the wicks of their candles and lamps. The ruſh, ſtripped of its bark, was as commonly in uſe with them as with us for this purpoſe; and they alſo uſed the nettle, this mullein, and many other plants, whoſe ſtalks were compoſed of tough filaments, for the ſame purpoſe; beating them out like hemp, and when dry dipping them in melted roſin, and other ſuch inflammable ſubſtances. When thus prepared, they are readily inflammable; and this mullein, having ſtalks more long and large; and more firm than all the others, was uſed to make thoſe lights with which they ſet fire to the funeral pile for conſuming the bodies of their dead friends.

NECYDALIS, in zoology, a genus of inſects belonging to the order of coleoptera. The feelers are ſetaceous; the elytra are ſhorter and narrower than the wings; the tail is ſimple. There are 11 ſpecies, chiefly diſtinguiſhed by the ſize and figure of their elytra. Barbut ſays, "Their head is black, eyes are large and prominent, jaws are of a dark brown. The antennæ placed on the top of the head between the eyes have their firſt articulation long and raiſed upright, the reſt bent and turned aſide. The antennæ vary as to length and colour. In individuals whoſe thorax is yellow, they are brown, and equal only to two thirds of the body in length. On the contrary, in thoſe whoſe thorax is black, they are likewiſe black, and ſomewhat longer than the body. The thorax is margined; in ſome it is yellow and longer; in others it is black, ſhorter, and edged only with a little yellow. The elytra are blackiſh, ſomewhat clearer in the middle, and terminating in a lemon-coloured ſpot. The wings are rather black, ſomething longer than the body; exceed the elytra by one third, and are croſſed one over the other. In thoſe which have their thorax yellow, the legs and under part of the belly are ſo likewiſe. In individuals with a black thorax, the legs are black as well as the belly, which has only a little yellow on the ſides. I ſuſpect the latter to be the males. The larva is as yet unknown."

NECYSIA, a ſolemnity obſerved by the ancient Greeks, in memory of the dead.

NEDHAM. See NEEDHAM, N° 2.

NEDOSTRELOVA, } 2 towns of Ruſſia; 1. in
NEDRIGALLO; } Irkutſk; 2. in Charkow.

NED-ROMA, an ancient town of Algiers, in Tremecen, built by the Romans, in a fertile country, near a river at the foot of a hill, 10 miles from the Mediterranean, and 50 WSW. of Oran. It has magnificent ruins.

NEDSJED, an extenſive province of Arabia, comprehending great part of its interior; bounded N. by the deſert of Syria, E. by Lachſa, S. by Hadramaut and Yemen, and W. by Hedsjas. The ſoil is partly fertile, partly barren. It is moſtly inhabited by BEDOUINS, who are very hoſpitable, yet addicted to robbery. Cities, towns, and villages are numerous, and almoſt every town has its own ſchiech.

(1.) NEDSJERAN, a principality of Arabia in Yemen, fertile in corn and fruits. Its horſes and camels are much eſteemed.

(2.) NEDSJERAN, an ancient city, capital of the above territory, famous in Arabian hiſtory, about 100 miles NE. of Saade.

* NEED. *n. ſ.* [*need*, Saxon; *nood*, Dutch.] 1. Exigency; preſſing difficulty; neceſſity.—The very ſtream of his life, and the buſineſs he hath helmed, muſt, upon a warranted *need*, give him a better proclamation. *Shak. Meaſ. for Meaſ.*—

That ſpirit that firſt ruſh'd on thee
In the camp of Dan,
Be efficacious in thee now at *need*. *Milt. Agon.*
In thy native innocence proceed,
And ſummon all thy reaſon at thy *need*. *Dryd.*

2. Want; diſtreſsful poverty.—

Famine is in thy cheeks;
Need and oppreſſion ſtare within thine eyes. *Shak.*

—Defer not to give to him that is in *need*. *Eccl.* iv. 3.

The diſtant heard, by fame, her pious deeds;
And laid her up for their extremeſt *needs*. *Dryd.*

—God ſometimes calls upon thee to relieve the *needs* of thy brother. *South.* 3. Want; lack of any thing for uſe.—

God grant we never may have *need* of you. *Sh.*

—God who ſees all things intuitively, neither ſtands in *need* of logic, nor uſes it. *Baker.*

(1.) * *To* NEED. *v. a.* [from the noun.] To want; to lack; to be in want of; to require.—

Allow not nature more than nature *needs*.
Man's life is cheap as beaſt's. *Shak. King Lear.*

—The whole need not a phyſician. *Matthew.*—

Thou thy regal ſceptre ſhalt lay by,
For regal ſceptre then no more ſhall *need*. *Milt.*

—To aſk whether the will has freedom? is to aſk whether one power has another? A queſtion too abſurd to *need* an anſwer. *Locke.*

(2.) * *To* NEED. *v. n.* 1. To be wanted; to be neceſſary.—

More ample ſpirit than hitherto was wont,
Here *needs* me whiles the famous anceſtors
Of my moſt dreadful ſovereign I recount. *Sp.*

—When we have done it, we have done all that is in our power, and all that *needs*. *Locke.*—2. To have neceſſity of any thing; to be in want of any thing.—We have inſtances of perception whilſt we are aſleep; but how incoherent and how little conformable to the perfection of a rational being, thoſe who are acquainted with dreams *need* not be told. *Locke.*—He that would diſcourſe of things, as they agree in the complex idea of extenſion and ſolidity, *needed* but uſe the word body. *Locke.*

NEEDEN, a town of Ireland, in Kerry.

* NEEDER. *n. ſ.* [from *need*.] One that wants any thing.—

We ſhall not ſend
O'er the vaſt world, to ſeek a ſingle man;
And loſe advantage, which doth ever cool
In th' abſence of the *needer*. *Shak. Cor.*

* NEEDFUL. *adj.* [*need* and *full*.] Neceſſary; indiſpenſably requiſite.—Give us all things that be *needful*, both for our ſouls and bodies. *Com. Prayer.*

Do you conſent we ſhall acquaint him with it,
As *needful* in our loves, fitting our duty? *Shak.*
All things needful for defence abound. *Dryd.*

—It is not *needful* to uſe arguments, to evince the world to be finite. *Locke.*—

A lonely deſart and an empty land,
Shall ſcarce afford, for *needful* hours of reſt,
A ſingle houſe to their benighted gueſt.
Addiſon on Italy.

* NEEDFULLY. *adv.* [from *needful*.] Neceſſarily.

They who
Dare for theſe poems, yet both aſk and read,
And like them too; muſt *needfully*, tho' few,
Be of the beſt. *Ben Jonſon.*

* NEEDFULNESS. *n. ſ.* [from *needful*.] Neceſſity.

(1.) NEEDHAM, John Tuberville, was born at London, 10th Sept. 1713. His parents were deſcended from ancient and noble families. His father, who had once a conſiderable patrimony at Hilſton in Monmouthſhire, was of the younger and Catholic branch of the Needham family: the head of the elder and Proteſtant branch was lord Kilmory, created viſcount in 1625. The father of Mr Needham died young, and left but a ſmall fortune to his 4 children. His eldeſt ſon, John, proſecuted his ſtudies in the Engliſh college of Douay, where he took orders, taught rhetoric for ſeveral years, gave eminent proofs of genius, and ſurpaſſed all the other profeſſors in experimental philoſophy. In 1740, he was engaged in the Engliſh miſſion, and was entruſted with the direction of the ſchool at Twyford, for the education of Roman Catholic youth. In 1744, he was appointed profeſſor of philoſophy in the Engliſh college at Liſbon, where, from bad health, he remained only 15 months. After this, he ſpent ſeveral years at London and Paris, principally in microſcopical obſervations and other branches of experimental philoſophy. The reſults of his experiments were publiſhed in the *Phil. Tranſ.* in 1749, and in a volume in 12mo at Paris in 1750. An account of them was alſo given by M. de Buffon, in his Natural Hiſtory. This illuſtrious French naturaliſt and Mr Needham made their experiments and obſervations together; though the reſults and ſyſtems which they deduced from the ſame objects and obſervations were totally different. Mr Needham was admitted F. R. S. of London in 1747, and F. A. S. ſome time after. From 1751 to 1767 he was chiefly employed in attending ſeveral Engliſh and Iriſh noblemen, as tutor, in their travels through France, Italy, and other countries. He then retired to the Engliſh ſeminary at Paris, and in 1768 was choſen by the Royal Academy of Sciences in that city a correſponding member. When the regency of the late Auſtrian Netherlands formed the project of an Imperial academy, Mr Needham was invited to Bruſſels by Count Cobentzel and the preſident Neny, and was appointed chief director. He held this place, with ſome eccleſiaſtical preferments in the Low Countries, until his death, December 30, 1781. "His attachment to the doctrines and duties of Chriſtianity was inviolable, and his probity was untainted."

(2.) **Needham**, Marchmont, an Engliſh ſatyrical writer, born at Burford, Oxon, about Auguſt 1620. His father died in 1621; but in 1622 his mother was again married to one Chriſtopher Glynn, vicar and ſchoolmaſter of Burford; who, perceiving his ſtep-ſon's pregnancy of parts and genius, took him under his own tuition, and at the age of 14 ſent him to All Souls College, Oxford, where he was made one of the choriſters, and continued till 1637, when he took the degree of A. B. and went to London. About the beginning of the civil wars, he became clerk to an attorney at Gray's Inn. In Aug. 1643, he began a weekly paper entitled *Mercurius Britannicus*, on the ſide of the parliament. It commenced in Aug. 1643, in one ſheet, and continued till the end of 1646. It procured him popularity, and being active, he was diſtinguiſhed by the title of Capt. Needham of Gray's Inn. About this time, he ſtudied phyſic, and in 1645 began to practiſe; by which, and his political writings, he ſupported a genteel figure. But on account of ſome affront, he left his party, turned royaliſt, was introduced to the king at Hampton-court in 1647, and aſking pardon, readily obtained it: after this he wrote another paper, entitled *Mercurius Pragmaticus*; which being equally witty with the former, as ſatyrical againſt the Preſbyterians, and full of loyalty, made him admired by the wits of that ſide. However, being narrowly ſought after, he left London, and for a time lay concealed at the houſe of Dr Peter Heylin, at Minſter-Lovel, near Burford, till being diſcovered, he was impriſoned in Newgate, and in danger of his life. Lenthal the ſpeaker of the Houſe of Commons, who knew his relations, and **Bradſhaw**, preſident of the high court of juſticiary, treated him favourably, and not only procured his pardon, but, with promiſe of rewards, perſuaded him to change his ſide once more for the Independents, who then were the uppermoſt party.—In this temper he publiſhed a 3d weekly paper called *Mercurius Politicus*, which came out every Wedneſday, in two ſheets 4to, commencing with the 9th of June 1649, and ending with the 6th of June 1650, which being Thurſday, he began again with N° I. This paper, which contained many diſcourſes againſt monarchy, and in behalf of a free ſtate, was carried on without any interruption till about the middle of April 1660, when it was prohibited by an order of the council of ſtate. Upon the return of Charles II. our author lay hid, till, by virtue of money, he obtained his pardon; after which he practiſed phyſic among the Diſſenters, which brought him in a conſiderable emolument till his death, in 1678. Wood, who knew him, tells us, that he was endowed with quick natural parts, a good humaniſt, poet, and boon droll; and, had he been conſtant to his cavaliering principles, would have been beloved and admired by all; but being mercenary, and preferring his intereſt to his conſcience, was much hated by the royal party to the laſt.

(3.) **Needham**, a town of Suffolk, on the Orwell, 10 miles NW. of Ipſwich, on the road to Huntingdonſhire. Its market is on Wedneſday, and fair on October 28. It lies 73 miles NE. of London. Lon. 1. 23. E. Lat. 52. 15. N.

(4.) **Needham**, a town of Norfolk.

* NEEDILY. *adv.* [from *needy.*] In poverty; poorly.

* NEEDINESS. *n. ſ.* [from *needy.*] Want; poverty.—Whereas men have many reaſons to perſuade; to uſe them all at once weakeneth them. For it argueth a *needineſs* in every one of the reaſons, as if one did not truſt to any of them, but fled from one to another. *Bacon.*

(1.) * NEEDLE. *n. ſ.* [*nædl*, Sax.] 1. A ſmall inſtrument pointed at one end to pierce cloth, and perforated at the other to receive the thread, uſed in ſewing.—

For him you waſte in tears your widow'd hours,
For him your curious *needle* paints the flowers.
Dryden.

—The moſt curious works of art, the ſharpeſt fineſt *needle*, doth appear as a blunt rough bar of iron coming from the furnace of the forge. *Wilkins.* 2. The ſmall ſteel bar which in the mariners compaſs ſtands regulary north and ſouth.—

Go bid the *needle* its dear north forſake,
To which with trembling rev'rence it doth bend.
Cowley.

—The uſe of the loadſtone, and the mariner's *needle*, was not then known. *Burnet.*

(2.) Needle, § 1. *def.* 1. Needles make a very conſiderable article in commerce, though there is ſcarce any commodity cheaper, the conſumption of them being almoſt incredible.—The ſizes are from N° 1. the largeſt, to N° 25, the ſmalleſt. In the manufacture of needles, German and Hungarian ſteel are of moſt repute. In the making of them, the firſt thing is to paſs the ſteel through a coal fire, and under a hammer, to bring it out of its ſquare figure into a cylindrical one. This done, it is drawn through a large hole of a wire-drawing iron, and returned into the fire, and drawn through a ſecond hole of the iron ſmaller than the firſt; and thus ſucceſſively from hole to hole, till it has acquired the degree of fineneſs required for that ſpecies of needles; obſerving every time it is to be drawn, that it be greaſed over with lard, to render it more manageable. The ſteel thus reduced to a fine wire, is cut in pieces of the length of the needles intended. Theſe pieces are flatted at one end on the anvil, in order to form the head and eye; they are then put into the fire, to ſoften them farther; and thence taken out and pierced at each extreme of the flat part on the anvil, by a puncheon of well-tempered ſteel, and laid on a leaden block to bring out, with another puncheon, the little piece of ſteel remaining in the eye. The corners are then filed off the ſquare of the heads, and a little cavity filed on each ſide of the flat of the head; this done, the point is formed with a file, and the whole filed over; they are then laid to heat red-hot on a long narrow iron, crooked at one end, in a charcoal fire; and when taken out thence, are thrown into a baſon of cold water to harden. On this operation a good deal depends; too much heat burns them, and too little leaves them ſoft; the medium is learned by experience. When thus hardened, they are laid in an iron ſhovel on a fire more or leſs briſk in proportion to the thickneſs of the needles; taking care to move them from time to time. This ſerves to temper them, and take off their brittleneſs; great care here too muſt be taken of the degree of heat. They are then ſtraightened one after another with the hammer, the coldneſs of the water uſed in hardening them having twiſted the greateſt part of them. The next proceſs is the poliſhing them. To do this, they take 12,000 or 15,000 needles, and range them in little heaps againſt each other on a piece of new buckram ſprinkled with emery-duſt. The needles thus diſpoſed, emery-duſt is thrown over them, which is again ſprinkled with oil of olives; at laſt the whole is made up into a roll, well bound at both ends. This roll is then laid on a poliſhing table, and over it a thick plank loaded with ſtones, which two men work backwards and forwards a day and a half, or two days, ſucceſſively; by which means the roll thus continually agitated by the weight and motion of the plank over it, the needles withinſide being rubbed againſt each other with oil and emery, are inſenſibly poliſhed. After poliſhing, they are taken out, and the filth waſhed off them with hot water and ſoap; they are then wiped in hot bran, a little moiſtened, placed with the needles in a round box, ſuſpended in the air by a cord, which is kept ſtirring till the bran and needles be dry. The needles thus wiped in two or three different brans, are taken out and put in wooden veſſels, to have the good ſeparated from thoſe whoſe points or eyes have been broken either in poliſhing or wiping; the points are then all turned the ſame way, and ſmoothed with an emery-ſtone turned with a wheel. This operation finiſhes them, and there remains nothing but to make them into packets of 250 each. Needles were firſt made in England by a native of India in 1545, but the art was loſt at his death; it was, however, recovered by Chriſtopher Greening in 1560, who was ſettled, with his three children, Elizabeth, John, and Thomas, by Mr Damer, anceſtor of the preſent lord Milton, at Long Crendon in Bucks, where the manufactory has been carried on from that time to the preſent period.

(3.) Needle, Dipping. See Dipping Needle, § II. 1—7.; and *Plate* CCXLV. *fig.* 1. For a particular account of the variations, both of the horizontal and dipping needle, ſee Variation. Mr Nairne made a dipping needle in 1772 for the Board of longitude, which was uſed in the voyage towards the north pole. See *Plate* CCXLV. *fig.* 2. The needle AA is 12 inches long, and its axis, the ends BB of which are made of gold alloyed with copper, reſts on friction-wheels CCCC, of four inches diameter, each end on two friction-wheels; which wheels are balanced with great care. The ends of the axes of the friction-wheels are likewiſe of gold alloyed with copper, and moved in ſmall holes of bell-metal; and oppoſite to the ends of the axes of the needle and the friction-wheels, are flat agates, ſet in at DDD, finely poliſhed. The magnetic needle vibrates within a circle of bell-metal, EEE, divided into degrees and half degrees; and a line, paſſing through the middle of the needle to the ends, points to the diviſions. The needle of this inſtrument was balanced before it was made magnetical; but by means of a croſs, the ends of which are FFF (contrived by the Rev. Mr Mitchell) fixed on the axis of the needle, on the arms of which are cut very fine ſcrews to receive ſmall buttons, that may be ſcrewed nearer or farther from the axis, the needle may be adjuſted both ways to a great nicety, after being made magnetical, by reverſing the poles, and changing the ſides of the needle. GG are two levels, by which the line of 0 degrees of the inſtrument is ſet horizontal by means of the four adjuſting ſcrews LLLL; H is the perpendicular axis, by which the inſtrument may be turned, that the divided face of the circle may front the eaſt or weſt; to this axis is fixed an index I, which points to an oppoſite line on the horizontal plate K, when the inſtrument is turned half round; MMMM are ſcrews which hold the glaſs cover to keep the needle from being diſturbed by the wind. When this needle is conſtructed for ſea, it is ſuſpended by an univerſal joint on a triangular ſtand, and adjuſted vertically by a plumb-line and button above the divided circle and the dovetail work at the upper 90; and the diviſions on the circle are adjuſted, ſo as to be perpendicular to the horizon, by the ſame plumb-line and an adjoining ſcrew; and when it is adjuſted pointer annexed to a ſcrew, which ſerves to ove the divided circle, is fixed at the loweſt 90. Vhenever the inſtrument is uſed to find the dip, muſt be ſo placed, that the needle may vibrate xactly in the magnetic meridian.

(4.) **Needle, Magnetical**, in navigation, a eedle touched with a loadſtone, and ſuſtained on pivot or centre; on which playing at liberty, it irects itſelf to certain points in or under the orizon; whence the magnetical needle is of two inds, viz. horizontal or inclinatory. See **Magnet**, § 2. Horizontal needles are thoſe equally alanced on each ſide of the pivot that ſuſtains hem; and which, playing horizontally with their wo extremes, point out the north and ſouth oints of the horizon. For their application and ſe, ſee **Compass**, § V. 1—6. In the conſtruction of the horizontal needle, a piece of pure ſteel is provided; of a length not exceeding ſix inches, leſt its weight ſhould impede its volubility; very thin, to take its verticity the better; and not pierced with any holes, which prevent the equable diffuſion of the magnetic virtue. A perforation is then made in the middle of its length, and a braſs cap or head ſoldered on, whoſe inner cavity is conical, ſo as to play freely on a ſtyle or pivot, headed with a fine ſteel point. The north point of the needle in our hemiſphere is made a little lighter than the ſouthern; the touch always deſtroying the balance, if well adjuſted before, and rendering the north end heavier than the ſouth, and thus occaſioning the needle to dip. The method of giving the needle its verticity or directive faculty has been ſhewn already under the article **Magnet**; but if, after touching, the needle be out of its equilibrium, ſomething muſt be filed off from the heavier ſide, till it balance evenly. Needles in ſea compaſſes are uſually made of a rhomboidal or oblong form. For their ſtructure, ſee **Compass**, § V. 1—5. The needle is not found to point preciſely to the north, except in very few places; but deviates from it more or leſs in different places, and that too at different times; which deviation is called its *declination* or *variation from the meridian*. See **Variation**.

(5.) **Needle Micrometer.** See **Micrometer**, § IV. N° ii.

(6.) **Needles, Surgeons**, are generally made crooked, and their points triangular. They are of different forms and ſizes, and bear different names, according to the purpoſes they are uſed for. The largeſt are uſed in amputation; the next for wounds; the fineſt needles for ſutures. Others are made very ſhort and flat, for tendons; others, ſtill ſhorter, and the eye placed in the middle, for tying together of veſſels, &c. Needles for couching cataracts are of various kinds; all of which have a ſmall, broad, and ſharp point or tongue; and ſome with a fulcus at the point. Surgeons have ſometimes uſed two needles in this operation; one with a ſharp point for perforating the coats of the eye, and another with a more obtuſe point for depreſſing or couching the opaque cryſtalline lens; but care ſhould be taken in the uſe of any of theſe, that they be firſt well poliſhed with cloth or leather, before they are applied to the eye. Mr Warner obſerves, that the blade of the couching needle ſhould be at leaſt a third part larger than thoſe generally uſed upon this occaſion, as great advantages will be found in the depreſſing of the cataract, by the increaſed breadth of the blade of that inſtrument. The handle, alſo, if made ſomewhat ſhorter than uſual, will enable the operator to perform with greater ſteadineſs than he could do with a larger handled inſtrument. Needles of ſilver pierce more eaſily in ſtitching arteries after an amputation than thoſe made of ſteel.

(1.) * **Needle-fish.** *n. ſ.* [*belone; needle* and *fiſh.*] A kind of ſea-fiſh.—One rhomboidal bony ſcale of the *needle-fiſh. Woodward.*

(2.) **Needle-fish.** See **Syngnathus**, N° 1.

* **NEEDLEFUL.** *n. ſ.* [*needle* and *full.*] As much thread as is generally put at one time in the needle.

* **Needle-maker.** } *n. ſ.* [from *needle.*] He
(1.) * **NEEDLER.** } who makes needles.

(2.) **Needler**, Thomas, an Engliſh author, born in 1690. He had a place in the Navy Office, but died in 1718, aged 28. His works in proſe and verſe were publiſhed by D. Duncombe, in 1724, and were well received.

(1.) **NEEDLES**, in geography. See **Alps**.

(2.) **Needles**, ſharp pointed rocks, N. of the Iſle of Wight. They are ſituated at the W. end of the iſland, which is an acute point of high land, from which they have been disjoined by the waſhing of the ſea. There were of theſe lofty white rocks formerly three, but about 14 years ago the talleſt of them, called *Lot's Wife*, which aroſe 120 feet above low water-mark, and in its ſhape reſembling a needle, being undermined by the conſtant efforts of the waves, overſet, and totally diſappeared.

Needle's-Eye, a ſubterranean paſſage on the coaſt of Banffſhire, 150 yards long from ſea to ſea, but through which a man can with difficulty creep. At the N. end of it is a cave 20 feet high, 30 broad, and 150 long, containing a ſpace of 90,000 cubic feet. The whole is ſupported by immenſe columns of rock, is exceedingly grand, and has a ſurpriſing fine effect on the ſpectator, after creeping through the narrow paſſage. *Stat. Acc.* I. 437.

* **NEEDLESS.** *adj.* [from *need.*] 1. Unneceſſary; not requiſite.—Their exception againſt eaſineſs, as if that did nouriſh ignorance, proceedeth altogether of a *needleſs* jealouſy. *Hooker.*

This ſudden ſtab of rancour I miſdoubt;
Pray God, I ſay, I prove a *needleſs* coward. *Shak.*

—Would not theſe be great and *needleſs* abatements of their happineſs, if it were confined within the compaſs of this life only? *Atterbury.*—Money we either lock up in cheſts, or waſte it in *needleſs* and ridiculous expences upon ourſelves, whilſt the poor and the diſtreſſed want it for neceſſary uſes. *Law.* 2. Not wanting. Out of uſe.

For his weeping in the *needleſs* ſtream,
Poor dear, quoth he, thou mak'ſt a teſtament,
As worldlings do, giving thy ſum of more
To that which had too much. *Shak.*

* **NEEDLESSLY.** *adv.* [from *needleſs.*] Unneceſſarily; without need.—We render languages more difficult to be learnt, and *needleſsly* advance orthography into a troubleſome art. *Holder.*

* **NEEDLESSNESS.** *n. ſ.* [from *needleſs.*] Unneceſſarineſs.—To explain St Paul's epiſtles, after

ſo great a train of expoſitors, might ſeem cenſurable for its *needleſſneſs*, did not daily examples of pious and learned men juſtify it. *Locke.*

* Needlework. *n. ſ.* [*needle* and *work*.] 1. The buſineſs of a ſempſtreſs. 2. Embroidery by the needle.—In *needleworks* and embroideries, it is more pleaſing to have a lively work upon a lightſome ground, than a dark and melancholy work upon a lightſome ground. *Bacon.*—In a curious brede of *needlework*, one colour falls away by ſuch juſt degrees, and another riſes ſo inſenſibly, that we ſee the variety without being able to diſtinguiſh the total vaniſhing of the one from the firſt appearance of the other. *Addiſon.*

* NEEDMENT. *n. ſ.* [from *need*.] Something neceſſary.—

Behind
His ſcrip did hang, in which his *needments* he
did bind. *Spenſer.*

(1.) * NEEDS. *adv.* [*neads*, Saxon, unwilling.] Neceſſarily; by compulſion; indiſpenſably.—That which all men have at all times learned, nature herſelf muſt needs have taught. *Hooker.*—God muſt *needs* have done the thing which they imagine was to be done. *Hooker.*—

I muſt *needs* after him, madam, with my
letter. *Shak.*

—Another being elected, and his ambaſſadors returned, he would *needs* know the cauſe of his repulſe. *Davies.*—

Objects divine
Muſt *needs* impair, and weary human ſenſe.
Milton.

—To ſay the principles of nature muſt *needs* be ſuch as philoſophy makes them, is to ſet bounds to omnipotence. *Glanville.*—A trial at law muſt *needs* be innocent in itſelf, when nothing elſe corrupts it. *Kettlewell.*—

I have affairs below,
Which I muſt *needs* diſpatch before I go. *Dryd.*

(2.) Needs, St, or St Neots, a large well-built town of Huntingdonſhire, ſix miles from Huntingdon, and 56 NNW. of London; ſo called from the monuments of a ſaint of that name in it, who was burnt by the Danes. It has a handſome ſtrong church with a fine ſteeple, and a good ſtone bridge over the Ouſe, by which coals are brought to it. It has a charity-ſchool for twenty-five children. Its market is on Thurſday; fairs on Holy Thurſday, Auguſt 1, Corpus-Chriſti Thurſday, June 13. and December 17.; and it is famous for a medicinal ſpring. It lies 20 miles WSW. of Cambridge, and 56 NNW. of London. Lon. 0. 30. W. Lat. 52. 7. N.

NEEDSORE Point, a cape of Hampſhire, on the S. coaſt; 4 m. WNW. of Cowes, iſle of Wight.

NEEDWOOD, a foreſt in Staffordſhire, between the Trent, Dove, and Blythe, near Uttoxeter, ſaid to exceed all the foreſts in England in the excellency of its ſoil and the fineneſs of its turf.

* NEEDY. *adj.* [from *need*.] Poor; neceſſitous; diſtreſſed by poverty.—

Their gates to all were open evermore,
And one ſat waiting ever them before,
To call in comers by, that *needy* were and poor.
Spenſer.

—In his *needy* ſhop a tortoiſe hung. *Shak.*

—The poor and *needy* praiſe thy name. *Pſ.* lxxiv. 21.—We bring into the world a poor *needy* uncertain life. *Temple.*—Being put to right himſelf upon the *needy*, he will look upon it as a call from God to charity. *Kettlewell.*—

Let happy men for gen'rous love declare,
And chuſe the *needy* virgin, chaſte and fair.
Glanville.

—To relieve the *needy*, and comfort the afflicted, are duties that fall in our way every day. *Spect.*

NEEFS, Peter, a Flemiſh painter, a diſciple of Steenwick, who attained ſuch a degree of perfection in perſpective, that he has hardly ever been equalled. His ſon was alſo a good painter, but inferior to him.

NEEHEEHEOW, } Oneehow, one of the
NEEHEEHOW, or } Sandwich Islands. See
Oneehow and Sandwich.

NEEMIAS. See Nehemiah.

(1.) NEER, Arnold Van der, an eminent landſcape painter, born at Amſterdam in 1619. He died in 1683. His paintings are ſtill in eſteem.

(2.) Neer, Hendric, ſon of Arnold, painted hiſtory, landſcapes, and portraits. He died in 1703.

(3.) * Ne'er. [for *never*.]

It appears I am no horſe,
That I can argue and diſcourſe;
Have but two legs, and *ne'er* a tail. *Hudibras.*

* *To* NEESE. *v. n.* [*nyſe*, Dan. *nieſen*, Dutch.] To ſneeſe; to diſcharge flatulencies by the noſe. Retained in Scotland.—The child *neeſed* ſeven times, and opened his eyes. 2 *Kings*, iv. 35.—By his *neeſings* a light doth ſhine. *Job.* xli. 18.

NE EXEAT REGNO, in law, is a writ to reſtrain a perſon from going out of the kingdom without the king's licenſe. F. N. B. 85. It may be directed to the ſheriff, to make the party find ſurety that he will not depart the realm, and on refuſal, to commit him to priſon; or it may be directed to the party himſelf; and if he then goes, he may be fined. And this writ is granted on a ſuit being commenced againſt a man in the chancery, when the plaintiff fears the defendant will fly to ſome other country, and thereby avoid the juſtice and equity of the court; which hath been ſometimes practiſed; and when thus granted, the party muſt give bonds to the maſter of the rolls, in the penalty of 2000l. or ſome other large ſum, for yielding obedience to it; or ſatisfy the court, by anſwer, affidavit, or otherwiſe, that he hath no deſign of leaving the kingdom, and give ſecurity.

* NEF. *n. ſ.* [old French; from *nave*.] The body of a church; the nave.—The church of St Juſtina, by Palladio, is the moſt handſome, luminous, diſencumbered building in Italy. The long *nef* conſiſts of a row of five cupolas, the croſs one has on each ſide a ſingle cupola deeper than the others. *Addiſon.*

* NEFARIOUS. *adj.* [*nefarius*, Lat.] Wicked, abominable.—The moſt *nefarious* baſtards are they whom the law ſtyles inceſtuous baſtards, which are begotten between aſcendants and deſcendants. *Ayliffe's Parergon.*

NEFASTI dies, in Roman antiquity, an appellation given to thoſe days wherein it was not allowed to adminiſter juſtice, or hold courts. They were ſo called, becauſe, *non fari licebat*, the prætor was not allowed to pronounce the three ſolemn ſolem words or formulas of the law, *do, dico, addico*, I give, I appoint, I adjudge. Theſe days were diſtinguiſhed in the calendar by the letter N. for *nefaſtus*; or N. P. *Nefaſtus Primo*, when the day was only *nefaſtus* in the forenoon, or firſt part. The days of a mixed kind were called *intercifi*.

NEFERN, a village in Pembrokeſhire, in the church-yard of which is a remarkable old croſs. The church has no pavement in it, and the frequent burials have raiſed the ground within it to 7 or 8 feet higher than without. In proceſs of time, inſtead of a church, it will be only a ſepulchre. It is pleaſantly ſituated on the banks of a river of the ſame name near Newport.

NEGAPATAM, or } a town of Indoſtan, in
NEGAPATAN, } Tanjore, on the coaſt of Coromandel. It was firſt a colony of the Portugueſe, but was taken from them by the Dutch, in 1658, who fortified and kept it till 1782, when it was taken by the Britiſh. The factory purchaſe little beſides tobacco and long linen cloths. It is 42 miles E. of Tanjore, and 150 S. of Madras. Lon. 79. 55. E. Lat. 10. 46. N.

NEGARA, a town in the iſland of Borneo, capital of the kingdom of Banjar Maſſim, on a river; 60 miles from Banjar Maſſim, and 100 from the coaſt.

(1.) * NEGATION. *n. ſ.* [*negatio*, Lat. *negation*. Fr.] 1. Denial: the contrary to *affirmation*.—Our aſſertions and *negations* ſhould be yea and nay. *Rogers*. 2. Deſcription by denial, or excluſion, or exception.—*Negation* is the abſence of that which does not naturally belong to the thing we are ſpeaking of. *Watts*.—Chance ſignifies, that all events called caſual, among inanimate bodies, are mechanically and naturally produced according to the determined figures, textures, and motions of thoſe bodies, with this only *negation*, that thoſe inanimate bodies are not conſcious of their own operations. *Bentley*. 3. Argument drawn from denial.—It may be proved in the way of *negation*, that they came not from Europe, as having no remainder of the arts, learning, and civilities of it. *Heylyn*.

(2.) NEGATION. See LOGIC, *Part* II. *Sect*. II.

(1.) * NEGATIVE. *adj.* [*negatif*, Fr. *negativus*, Lat.] 1. Denying: contrary to *affirmative*. 2. Implying only the abſence of ſomething.—There is another way of denying Chriſt with our mouths, which is *negative*, when we do not acknowledge and confeſs him. *South*.—Conſider the neceſſary connection that is between the *negative* and poſitive part of our duty. *Tillotſon*. 3. Having the power to withold, though not to compel.—Denying me any power of a *negative* voice as king, they are not aſhamed to ſeek to deprive me of the liberty of uſing my reaſon with a good conſcience. *K. Charles*.

(2.) * NEGATIVE. *n. ſ.* 1. A propoſition by which ſomething is denied.—Of *negatives* we have far the leaſt certainty; they are uſually hardeſt, and many times impoſſible to be proved. *Tillotſon*. 2. A particle of denial; as, *not*.—

A purer ſubſtance is defin'd,
But by an heap of *negatives* combin'd. *Cleavel.*

3. NEGATIVE ELECTRICITY. See ELECTRICITY, *Index*.

(4.) NEGATIVE SIGN, in Algebra. See ALGEBRA; *Part* I. The uſe of the negative ſign is attended with ſeveral conſequences, that at firſt ſight are admitted with difficulty, and has ſometimes given occaſion to notions that ſeem to have no real foundation. This ſign implies, that the real value of the quantity repreſented by the letter to which it is prefixed is to be ſubtracted; and it ſerves, with the poſitive ſign, to keep in view what elements or parts enter into the compoſition of quantities, and in what manner, whether as increments or decrements, (that is, whether by addition or ſubtraction), which is of the greateſt uſe in this art. In conſequence of this it ſerves to expreſs a quantity of an oppoſite quality to the poſitive, as a line in a contrary poſition; a motion with an oppoſite direction; or a centrifugal force in oppoſition to gravity; and thus often ſaves the trouble of diſtinguiſhing, and demonſtrating ſeparately, the various caſes of proportions, and preſerves their analogy in view. But as the proportions of lines depend on their magnitude only, without regard to their poſition, and motions and forces are ſaid to be equal, or unequal, in any given ratio, without regard to their directions; and, in general, the proportion of quantity relates to their magnitude only, without determining whether they are to be conſidered as increments or decrements; ſo there is no ground to imagine any other proportion of $-b$ and $+a$ (or of -1 and 1) than of the real magnitudes of the quantities repreſented by b and a, whether theſe quantities are, in any particular caſe, to be added or ſubtracted. It is the ſame thing to ſubtract a decrement, as to add an equal increment, or to ſubtract $-b$ from $a-b$, as to add $+b$ to it: and becauſe multiplying a quantity by a negative number implies only a repeated ſubtraction of it, the multiplying $-b$ by $-n$, is ſubtracting $-b$ as often as there are units in n; and is therefore equivalent to adding $+b$ ſo many times, or the ſame as adding $+nb$. But if we infer from this that 1 is to $-n$ as $-b$ to nb, according to the rule, that unit is to one of the factors as the other factor is to the product, there is no ground to imagine that there is any myſtery in this, or any other meaning than that the real magnitude repreſented by 1, n, b, and nb are proportional. For that rule relates only to the magnitude of the factors and product, without determining whether any factor, or the product, is to be added or ſubtracted. But this likewiſe muſt be determined in algebraic computations: and this is the proper uſe of the rules concerning the ſigns, without which the operation could not proceed. Becauſe a quantity to be ſubtracted is never produced in compoſition by any repeated addition of a poſitive, or repeated ſubtraction of a negative, a negative ſquare number is never produced by compoſition from the root. Hence $\sqrt{-1}$, or the ſquare root of a negative, implies an imaginary quantity; and, in reſolution, is a mark or character of the impoſſible caſes of a problem, unleſs it is compenſated by another imaginary ſymbol or ſuppoſition, when the whole expreſſion may have a real ſignification. Thus $1+\sqrt{-1}$, and $1-\sqrt{-1}$ taken ſeparately, are imaginary, but their ſum is 2; as the conditions that ſeparately would render the ſolution of a problem impoſſible, in ſome caſes, deſtroy each others effect when conjoined. In the purſuit of general concluſions, and of ſimple forms repreſenting them, expreſſions of this kind muſt ſometimes ariſe where the imaginary ſymbol is compenſated in a manner that is not always ſo obvious. By proper ſubſtitutions, however, the expreſſion may be transformed into another, wherein each particular term may have a real ſignification as well as the whole expreſſion. The theorems that are ſometimes briefly diſcovered by the uſe of this ſymbol, may be demonſtrated without it by the inverſe operation, or ſome other way; and though ſuch ſymbols are of ſome uſe in the computations by the method of fluxions, its evidence cannot be ſaid to depend upon arts of this kind. See Maclaurin's Fluxions, book ii. chap. 1. and Ludlam's Algebra, *paſſim*.

* NEGATIVELY. *adv.* [from *negative.*] 1. With denial; in the form of denial; not affirmatively.—When I aſked him whether he had not drunk at all? he anſwered *negatively*. *Boyle.* 2. In form of ſpeech implying the abſence of ſomething.—The fathers draw arguments from the Scriptures *negatively*, in reproof of that which is evil. *Hooker.*—To this I ſhall ſuggeſt ſomething by way of anſwer, both *negatively* and poſitively. *Wilkins.*—I ſhall ſhew what this image of God in man is, *negatively*, by ſhewing wherein it does not conſiſt. *South.*

NEGINOTH, a term prefixed to ſome of the Pſalms, as Pſalm lxvii. It ſignifies *ſtringed inſtruments of muſic*, to be played on by the fingers, or women muſicians; and the titles of thoſe pſalms, where this word is found, may be thus tranſlated, *A pſalm of David to the maſter of muſic, who preſides over the ſtringed inſtruments.*

* NEGLECT. *n. ſ.* [*neglectus*, Lat.]. 1. Inſtance of inattention. 2. Careleſs treatment; ſcornful inattention.—I have perceived a moſt faint *neglect* of late. *Shak.* 3. Negligence; frequency of neglect.—

Age breeds *neglect* in all. *Denham.*

4. State of being unregarded.—

Reſcue my poor remains from vile *neglect*.
Prior.

* *To* NEGLECT. *v. a.* [*neglectus*, Lat.] 1. To omit by careleſſneſs.—

Heaven,
Where honour due and rev'rence none *neglects*.
Milton.

2. To treat with ſcornful heedleſſneſs.—If he *neglect* to hear them, tell it unto the church. *Matthew.*—

This my long ſuff'ring and my day of grace,
Thoſe who *neglect* and ſcorn ſhall never taſte.
Milton.

3. To poſtpone.—

My abſence doth *neglect* no great deſign,
Which by my preſence might have been concluded.
Shak.

* NEGLECTER. *n. ſ.* [from *neglect.*] One who neglects.

* NEGLECTFUL. *adj.* [*neglect* and *full.*] 1. Heedleſs; careleſs; inattentive: with *of*.—Moral ideas not offering themſelves to the ſenſes, but being to be framed to the underſtanding, people are *neglectful of* a faculty they are apt to think wants nothing. *Locke.*—Though the Romans had no great genius for trade, yet they were not entirely *neglectful of* it. *Arbuthnot on Coins.* 2. Treating with indifference.—If the father careſs them when they do well, ſhew a cold and *neglectful* countenance to them upon doing ill, it will make them ſenſible of the difference. *Locke on Education.*

* NEGLECTFULLY. *adv.* [from *neglectful.*] With heedleſs inattention; careleſs indifference. A word not uſed.

* NEGLECTION. *n. ſ.* [from *neglect.*] The ſtate of being negligent.—

Sleeping *neglection* doth betray to loſs
The conqueſts of our ſcarce cold conqueror.
Shak.

* NEGLECTIVE. *adj.* [from *neglect.*] Inattentive to; regardleſs of.—I wanted not probabilities ſufficient to raiſe jealouſies in any king's heart, not wholly ſtupid and *neglective* of the publick peace. *King Charles.*

* NEGLIGENCE. *n. ſ.* [*negligence*, Fr. *negligentia*, Lat.] 1. Habit of omitting by heedleſſneſs, or of acting careleſsly. 2. Inſtance of neglect.—

She let it drop by *negligence*. *Shak.*

* NEGLIGENT. *adj.* [*negligent*, Fr. *negligens*, Latin.] 1. Careleſs; heedleſs; habitually inattentive.—My ſons, be not now *negligent*. 2 *Chron.* xxix. 11. 2. Careleſs of any particular: with *of* before a noun.—They ſee ſhe is not *negligent of* her devotion; but then they ſee her more careful to preſerve her complexion. *Law.*—We have been *negligent* in not hearing his voice. *Bar.* i. 19. 3. Scornfully regardleſs.—

Let ſtubborn pride poſſeſs thee long,
And be thou *negligent* of fame. *Swift's Miſc.*

* NEGLIGENTLY. *adv.* [from *negligent.*] 1. Careleſsly; heedleſsly; without exactneſs.—Inſects have voluntary motion, and therefore imagination; and whereas ſome of the ancients have ſaid that their motion is indeterminate, and their imagination indefinite, it is *negligently* obſerved, for ants go right forwards to their hills, and bees know the way to their hives. *Bacon's Nat. Hiſt.*—

Of all our elder plays;
This and Philaſter have the loudeſt fame:
Great are their faults, and glorious is their flame;
In both our Engliſh genius is expreſt,
Lofty and bold, but *negligently* dreſt. *Waller.*
In comely figure rang'd my jewels ſhone,
Or *negligently* plac'd for thee alone. *Prior.*

2. With ſcornful inattention.

NEGOMBO, a ſea-port town of Aſia, on the W. coaſt of Ceylon. It has a fort built by the Portugueſe, which was taken from them by the Dutch in 1640. Lon. 80. 25. W. Lat. 17. 0. N.

* *To* NEGOTIATE. *v. n.* [*negocier*, Fr. from *negotium*, Lat.] To have intercourſe of buſineſs; to traffick; to treat: whether of publick affairs or private matters.—Have you any commiſſion from your lord to *negociate* with my face? *Shak. Twelfth Night.*—She was a buſy *negotiating* woman. *Bacon's Henry* VII.—It is a common error in *negotiating*; whereas men have many reaſons to perſuade, they ſtrive to uſe them all at once, which weakeneth them. *Bacon.*—They, that received the talents to *negociate* with, did all at

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them, except one, make profit of them. *Hammond.*—A ſteward to ambezzle thoſe goods he undertakes to manage; an ambaſſador to betray his prince for whom he ſhould *negociate;* are crimes that double their malignity from the quality of the actors. *Decay of Piety.*—I can diſcover none of theſe intercourſes and negotiations, unleſs that Luther *negotiated* with a black boar. *Atterbury.*—

* NEGOTIATION. *n. ſ.* [*negociation.* Fr. from *negotiate.*] Treaty of buſineſs, whether publick or private.—Though it be a queſtion yet unreſolved, whether their affected gravity and ſlowneſs in their *negotiations* have tended more to their prejudice or advantage. *Howard.*—They ceaſed not from all worldly labour and *negotiation. White.*

* NEGOTIATOR. *n. ſ.* [*negociateur,* French; from *negociate.*] One employed to treat with others.—Thoſe who have defended the proceedings of our *negotiators* at Gertruydenburg, dwell much upon their zeal in endeavouring to work the French up to their demands. *Swift.*—

NEGREPELISSE, a town of France, in the dep. of Lot, fortified by the Hugonots in the 16th century, but in 1621, the fortifications were deſtroyed. It is 8 miles NE. of Montauban, and 22½ S. of Cahors.

(1.) * NEGRO. *n. ſ.* [Spaniſh; *negre,* Fr.] A blackmoor.—*Negroes* tranſplanted into cold and flegmatic habitations, continue their hue in themſelves and their generations. *Brown.*—

(2.) NEGRO, *Homo pelli nigra,* is a name given to a variety of the human ſpecies, who are entirely black, and are found in the Torrid zone, eſpecially in that part of Africa which lies within the tropics. In the complexion of negroes we meet with many various ſhades; but they likewiſe differ far from other men in all their features. Round cheeks, high cheek bones, a forehead ſomewhat elevated, a ſhort, broad, flat noſe, thick lips, ſmall ears, uglineſs, and irregularity of ſhape, characterize their external appearance. The negro women have the loins greatly depreſſed, and very large buttocks, which gives the back the ſhape of a ſaddle. Vices the moſt notorious that can diſgrace human nature, have been aſcribed to this unhappy race. But by whom has this picture been drawn? By thoſe perſons chiefly who have been intereſted in repreſenting them, becauſe they treated them as worſe than brutes.

(3.) NEGROES, CAUSES OF THE COLOUR OF. The origin of the negroes, and the cauſe of their remarkable difference from the reſt of the human ſpecies, has much perplexed naturaliſts. Mr Boyle has obſerved, that it cannot be produced by the heat of the climate: for though the heat of the ſun may darken the colour of the ſkin, yet experience does not ſhow that it is ſufficient to produce a new blackneſs like that of the negroes. In Africa itſelf, many nations of Ethiopia are not black; nor were there any blacks originally in the Weſt Indies. In many parts of Aſia, under the ſame parallel with the African region inhabited by the blacks, the people are but tawny. He adds, that there are negroes in Africa beyond the ſouthern tropic; and that a river ſometimes parts nations, one of which is black, and the other only tawny. Dr Barriere alleges, that the gall of Negroes is black, and being mixed with their blood is depoſited between the ſkin and ſcarf-ſkin. But Dr Mitchel of Virginia, in the *Philoſ. Tranſ.* N° 476, has endeavoured by many learned arguments to prove, that the influence of the ſun in hot countries, and the manner of life of their inhabitants, are the remote cauſes of the colour of the Negroes, Indians, &c. Lord Kames, on the other hand, and ſuch philoſophers as he, whoſe genius and imagination are too lively to ſubmit to a dry and painful inveſtigation of facts, have contended, that no phyſical cauſe is ſufficient to change the colour, and what we call the regular features of white men, to the dark hue and deformity of the woolly-headed negro. Their arguments have been examined with much acuteneſs and ingenuity by Dr Stanhope Smith of New Jerſey, Dr Hunter, and profeſſor Zimmerman, who have made it in a high degree probable, that the action of the ſun is the original and chief cauſe of the black colour, as well as diſtorted features, of the negro. See AMERICANS, § 2. and COMPLEXION, § 2—7. True negroes are found in no quarter of the globe where the heat of the climate is not very great. They exiſt no where but in the Torrid zone, and only in three regions ſituated in that zone, to wit, in Senegal, in Guinea, and on the weſtern ſhores of Africa, in Nubia, and the Papous land, or what is called *New Guinea.* In all theſe regions the atmoſphere is ſcorching, and the heat exceſſive. The inhabitants of the north are whiteſt; and as we advance ſouthwards towards the line, and thoſe countries on which the ſun's rays fall more perpendicular, the complexion gradually aſſumes a darker ſhade. And the ſame men, whoſe colour has been rendered black by the powerful action of the ſun, if they remove to the north, gradually become whiter (at leaſt their poſterity), and loſe their burnt colour. Whites, when tranſported into the burning regions of the Torrid zone, are at firſt ſubject to fever; the ſkin of the face, hands, and feet, becomes burnt, hardens, and falls off in ſcales. Hitherto the colour of negroes appear to be only local, extrinſic, and accidental, and their ſhort frizzled hair reſembles fine wool. The varieties in the colour of negroes, who always go naked, are alſo owing to the different temperature of their climates. During 8 months of the year they have a continued drought, a ſky conſtantly clear, no rain or ſtorm of any kind, exceſſive heat, and a plentiful fall of dew after ſunſet. Their food and the exhalations from the ſurface of the earth may likewiſe contribute to the production of this phenomenon. In a European or white, the lymph is white, except when it is mixed with bile, which gives a yellow tint to the ſkin. But in a negro, whoſe lymph and bile are black, according to ſome accounts, the ſkin ought, in like manner, to be of the ſame colour. It is maintained, however, by ſkilful anatomiſts, that the blood, lymph, chyle, and other fluids, and even the eyes, teeth, bones, and internal part of the lips, &c. of negroes, are not of a different colour from ours. It is evident, then, that the races of black and white men are not two different ſpecies, becauſe the fruit of their connection has the faculty of reproducing beings like themſelves, excepting the colour. The young negroes at birth, and even negro fœtuſes, have a conſiderable reſemblance to whites, excepting only that the ſcrotum and glans penis are black, and that they have a black or brown thread or circle on the extremity of the nails.' Theſe marks are a certain ſign that the infant will be black; and negro fathers, who ſuſpect the fidelity of their wives, conſider the want of them, as a ſufficient reaſon for abandoning the offspring. Among the Indians, the ſcrotum is grey, and in mulattoes of a pale red. The bodies of young negroes are whitiſh for the firſt 8 days, but their natural colour, though weak, is eaſily diſcernible; the ſkin begins to grow brown, then aſſumes a colour inclining to that of biſtre, and laſt of all becomes black. Some modern anatomiſts of great celebrity, who have inquired into the cauſe of this blackneſs, have found, that the reticulum in negroes is really as black as ink, and that this mucous colour ſhines through the whitiſh epidermis, which is thin and tranſparent. See *Mem. de l'Acad. des Sciences*, part 30. art. 13. *anno* 1702. See alſo *Traité de la couleur de la peau humaine*, by M. le Cat; who ſays, that we muſt ſeek, in the nervous ſyſtem, and the parts connected with it, for the fabrication of thoſe colours which give a taint to the ſkin of animals, and particularly of the animal Ethiops, which produces the colour of the negro.—It has been added, that the medullary ſubſtance of the brain in negroes is generally bluiſh; and that from this principle it follows, that the colour of the ſkin in the inhabitants of different zones depends upon the mucous ſubſtance of the reticulum. We have, however, been aſſured by phyſicians who had the beſt opportunities of making obſervations, that the pretended facts upon which this hypotheſis is built are mere imaginations, and that there is no apparent difference between the medullary ſubſtance of the brain in negroes, and the medullary ſubſtance of white men. A number of other facts equally remarkable are mentioned by authors concerning different men who have been born white in Europe, and who have become black in the ſame climate. We have heard likewiſe of negroes born in Guinea, who, even in the climate of Africa, have in the ſame manner become white, without ever turning to their former colour. Not long ago we had an account from Surinam of a negro of Angola whoſe ſkin and hair were perfectly white, though both his father and mother had very dark complexions. See Albinos.

(4.) **Negroes, different gradations of colour produced from, by mixtures with white people**, &c. The following is a table of the mixtures which produce a degradation of the black and white colours in the human ſpecies. 1. A white man with a negro woman, or a negro man with a white woman, produce a mulatto, half white and half black, or of a yellow-blackiſh colour, with black, ſhort, frizzled hair. 2. A white man with a mulatto woman, or a negro with a mulhatto woman, produce a *quarteron*, three fourths white and one fourth black, or three fourths black and one fourth white, or of a lighter yellow than the former. In America, they give the name of *cabres* to thoſe who are deſcended from a black man and a mulatto woman, or a mulatto man and a black woman, who are 3 fourths black and one 4th white, and who are not ſo black as a negro, but blacker then a mulatto. 3. A white man with a quarteron woman, or a negro man with a quarteron woman, produce a *meſtizo*, 7 eighths white and one 8th black, or 7 eighths black and one 8th white. 4. A white man with a meſtizo woman, or a negro with a meſtizo woman, produce, the one almoſt a perfect white, the other almoſt a perfect black. In following generations, if a conſtant intermixture has taken place, and the white has been married in Europe, the black in Senegal, the complexion will gradually become fairer or darker, till the offspring is either entirely black or entirely white. Such is the progreſs of phyſical effects and cauſes in the degradation of the colour of the human ſpecies. Croſſing the breed for four generations is ſufficient to render a negro white, and the ſame will make a white black. It is evident that the mixtures, a mulatto man with a quarteron or meſtizo woman will produce other colours approaching to white or black, in proportion to the progreſſion above ſtated. We have obſerved, under former articles, that the preſervation and continuation of the particular ſpecies appears to proceed from that parent, who, in the act of procreation, has diſcovered moſt ſtrength and vigour; and this is commonly the father. A young negro woman in Virginia, after having brought forth for the firſt time a black child, was delivered a ſecond time of twins; one of them, a boy, was black, and the other, who was a girl, was a mulatto. As the boy grew up, he retained his ſhort hair, which was naturally frizzled, and had a reſemblance to wool; other marks plainly ſhowed that he was a true negro, and in every reſpect like the black father who had begotten him. The girl, on the other hand, was tolerably white; ſhe had blue eyes, long black hair, without any natural curl; in ſhort, ſhe had a great reſemlance to the overſeer of the plantation, whom the negro huſband ſuſpected of cohabiting with his wife. Becoming pregnant a third time, ſhe was delivered of three children, two of them mulattoes, and the other a perfect negro. Shall we aſcribe this to the effect of imagination? Such an explanation is rejected by the philoſopher as abſurd, and contrary to every law of nature. We can account for the third delivery, therefore, only by admitting the cohabitation of two fathers of different races, and then a ſuperfœtation.

(5.) **Negroes, gradual formation of the colour of.** In every view, it is evident, that the white or black colour is only an accidental variety in warm climates, which is confirmed or effaced in foreign climates. In the ſame manner, the black colour, which in moſt climates is natural to ſeveral kinds of brute animals, is altered or entirely effaced in a different zone. Thus the blackbird, the raven, and the bear, which with us are black, are grey or white in the north. The union of the ſame ſpecies in the ſame climates makes theſe varieties hereditary. We repeat it; the black colour in the torrid zone proceeds from a cauſe altogether extrinſic, depends ſolely on local temperature, and in the human ſpecies is as accidental as the brown, the red, the yellow, the olive, and the tawny colour. We muſt conſider the whites as the ſtock whence all others have

ſprung.

ſpring. Adam and Eve, and their poſterity, till the time of the deluge, were white; in the firſt age of the world no black nation was to be found on the face of the earth; the regions of the torrid zone were then unknown. Let us conſult the ſacred and the profane hiſtorians, and we ſhall find that Noah, his three ſons, and their wives, who were ſaved in the ark, divided among themſelves the whole old continent, in which Africa was then included. The diſperſion of Noah's deſcendants did not take place till after the confuſion of tongues at Babel. Thoſe who paſſed into Africa, multiplied there, and their poſterity penetrated by degrees to the extremity of the peninſula. The original inhabitants of Africa were at firſt white, but by living there they afterwards became ſomewhat tawny; their children were of a darker hue and almoſt mulattoes; in the progreſs of time other ſucceeding generations became complete Moors; thoſe who ſpread towards the tropics ſoon became half blacks; and thoſe who lived under the equator, or in the torrid zone, from the influence of the ſun and climate, appeared in the courſe of a few generations perfectly black. A very conſiderable ſpace of time muſt neceſſarily have elapſed before this gradual and imperceptible change could be produced. The Iſhmaelites, Saracens, Moors, and Arabs, who invaded the weſtern part of Africa, likewiſe became black in a few generations; while thoſe of the ſame nations who invaded Spain underwent little or no change of colour; which is whitiſh in ſome, and tawny or yellow in others. M. de Manet, who has lately publiſhed an excellent hiſtory of Africa, conjectures that the complete change from white to perfect black might have been at the end of three centuries, thus makes fifteen generations, allowing twenty years for each generation. Benjamin de Tudelle, the celebrated Jewiſh traveller, ſaid in 1175, that the white colour became perfectly black in no more than ſix centuries, and in the courſe of 30 generations, without croſſing the breed. A greater number of generations is undoubtedly neceſſary before negroes, when tranſplanted into our temperate countries, can entirely loſe their black colour.

(6.) **Negroes, slavery of the.** Negroes are brought from Guinea and other coaſts of Africa, and ſent to America and the colonies in the Weſt Indies, to cultivate tobacco, ſugar, indigo, &c. and in Mexico and Peru to dig in the mines; and this commerce is now carried on by all the nations of Europe that have ſettlements in the Weſt Indies. Mahometan nations, too, import negroes from the pagan parts of Africa, for the purpoſe of making them eunuchs, and guards of their harems. The beſt ſlaves for Weſt India purpoſes are the negroes who are brought from Angola, Senegal, Cape Verd, the river Gambia, the kingdoms of the Jaloffes, &c. (See Guinea, N° 1. § 8.) This traffic is ſhocking, but it need not appear ſtrange. Through the whole peninſula of Africa with which we are acquainted, ſlavery has been prevalent from time immemorial. In the interior parts, one claſs of the people are born ſlaves to another; and, on the Gold Coaſt, a freeman is reduced to that ſtate for crimes real or imaginary. Priſoners of war are all conſidered as ſlaves, and, together with criminals, are ſold, either by one negro chief to another, or by ſlave-brokers to European merchants. Slaves, who are born ſuch, are not permitted to be ſold out of the country, unleſs they have been guilty of ſome offence which would have ſubjected them either to that ſtate or to death, though they had been born freemen. The crimes for which freemen are made ſlaves, are theft, debt, adultery, and witchcraft; and it is not uncommon for perſons to game themſelves away. All ſavages have an itch for games of hazard; and a negro will ſtake his freedom on a throw of the dice. If he loſe, no trial is neceſſary; he immediately ſurrenders himſelf to his ſucceſsful antagoniſt. Perſons accuſed of crimes are tried by certain judges called *Pynims*, who wear a peculiar ſtraw hat, as a badge of their office; and the trial is fairly conducted, according to the laws of the country, either in the market-place or in an open court of juſtice. Witchcraft proved againſt a man involves in his puniſhment the whole family, which is always extirpated, if there be not a European merchant to buy them; and adultery committed with the wife of a great man is conſidered as a crime of too deep a dye to be puniſhed with ſlavery, either to a black or a white maſter. Such offenders are inſtantly doomed to death. Human ſacrifices have at all times been practiſed in Africa; and ſuch is the depravity of the negro princes, that there is reaſon to believe, that priſoners of war are either all ſacrificed or ſold to foreign merchants That inſolvent debtors ſhould be reduced to ſlavery, among a people ſo very barbarous, can excite no wonder, when the ſame thing took place among the Romans in the earlier periods of the commonwealth. (See Nexi.) It likewiſe took place among the Jews, and all other ancient nations; and it is apparent from the poems of Homer, that the early Greeks treated their captives, whether male or female, as part of their property. Of the ſlaves imported into the Britiſh colonies, great part are brought from a great diſtance to the coaſt; and as theſe exhibit little or no ſymptoms of uneaſineſs at their being ſold into a foreign country, and doomed to ſerve maſters whom they never ſaw before, the probability is, that they have been born ſlaves to tyrants ſo cruel, that no change of maſters can, in their apprehenſion, increaſe their wretchedneſs. Negroes born on the coaſt are often extremely miſerable on the thoughts of being ſold to a foreign maſter; becauſe theſe men were originally free, and expect ſuch treatment as they have ſeen their own chiefs inflict upon priſoners of war, or perſons, who, among them, have been reduced from freedom to a ſtate of ſlavery. Theſe facts are mentioned, not with a view to defend the Britiſh ſlave trade, which will be conſidered in another place (ſee Slavery and Slave Trade), but merely becauſe they account for that ferocity and brutality by which negroes in many reſpects reſemble the moſt ſavage beaſts of prey. Some of them have been ſaid to feed on their brothers, and to devour their own children. But what indeed can be expected of men in their unhappy ſituation? Almoſt all blacks, but eſpecially thoſe of Loango, treat their women as vile ſlaves, created ſolely to amuſe and obey them. The wife often dares not look at her lord; ſhe ſpeaks to him on her knees; and yet this painful and humiliating ſituation is not diſtreſſing to them. Some negroes, however, are ſufficiently attached to their wives, and exceedingly fond of their miſtreſſes; theſe yield in no reſpect to the men, but obey without reſerve the natural impulſe of their conſtitution. We likewiſe find negroes of Congo, who, in order to pleaſe, become great jeſters and buffoons. A ſingle Congo ſlave is ſufficient to diffuſe chearfulneſs and good humour through a whole plantation.

(7.) Negroes, sterility of the, in the W. Indies. That the female negroes in the W. Indies are not nearly ſo prolific as in Africa, is an undoubted fact. To diſcover the cauſe of ſuch ſterility, is an object worthy of the attention of government. According to ſome, theſe ſlaves are often inſtigated by the bitterneſs of their lot to rid themſelves of a burden which other mothers ſupport with pleaſure. Without in any degree pleading the cauſe of the Weſt India planters, we may ſuppoſe, that, in this caſe, intereſt will ſupply the place of that principle of humanity which their opponents affirm them to want. To rear a negro is leſs expenſive than to purchaſe one from Africa; and by the confeſſion of all parties, a creole ſlave is double the value of one juſt imported. That ſelfiſhneſs, therefore, of which the ſugar-planters have been ſo often and ſo vehemently accuſed, would make them, one ſhould think, encourage, by every mean in their power, the propagation of negroes, ſince by the laws of the colonies the child of a female ſlave is the property of her maſter. We doubt not, that in the Weſt Indies, as every where elſe, there are men, who, in ſudden burſts of paſſion, forget their intereſt as well as their duty; and we are not inclined to deny, that there may be many inſtances of cruelty practiſed on the ſlaves both male and female; but, in Africa, cruelty is reduced to a ſyſtem, and yet the mothers nurſe and rear their children. One cauſe certainly of the barrenneſs of colonial negroes, is the ſmall number of females in proportion to the males, and the diſſolute and licentious lives which they lead. It is a certain fact, that when a woman, whether white or black, has a promiſcuous intercourſe with a number of men, ſhe very ſeldom conceives children; and as our negroes in the Weſt Indies are inſtructed in no principles of religion, and have appetites as keen as their maſters and their miſtreſſes, it is not ſurpriſing that many of the females abandon themſelves to licentious amours, and become in conſequence incapable of conception. The popiſh clergy in the French and Spaniſh iſlands, and the Moravian and Methodiſt paſtors in our own, are at the utmoſt pains to inſtruct the negroes in what they conceive to be the truths of Chriſtianity; whilſt the miſſionaries of the Engliſh church too generally neglect every duty of their ſacred function. The biſhop of London has had no eccleſiaſtical authority whatever in the colonies ſince 1748, nor any other epiſcopal connection with them, than that of conferring orders upon their candidates for livings. That the colonies would gladly adopt any proper plan for improving the morals and meliorating the condition of the negroes, has been lately proved by the moſt reſpectable evidence given at the bar of the Houſe of Lords; and were ſuch a plan put in execution, there cannot be a doubt, but that the ſlaves would be more diligent and faithful, the maſters have leſs occaſion to exerciſe cruelty, and the females, if imported in a ſufficient number, be as prolific as other women in the ſame latitudes. Both in France and England laws have been lately enacted, to preſerve the lives of negroes in what is called the *middle paſſage*, and to regulate the adminiſtration of juſtice to the negro ſlaves in the Weſt Indies. An edict to this purpoſe was, ſo far back as March 1724, publiſhed at Verſailles, called the *black code*; and laws have been lately made by the parliament of Great Britain, to inſure better accommodation to the negroes on board of ſhips from Africa to the ſugar iſlands. The colonial aſſemblies have likewiſe enacted laws to protect the perſons of the negroes while in their ſtate of ſervitude; and in ſome eſtates, theſe laws have been ſo well obſerved, that we have been informed by gentlemen of undoubted veracity, that they have known negro ſlaves poſſeſſed of one, two, and 3000l. So horrible, however, to a Britiſh ear is the very ſound of the word *ſlavery*, that, in 1791-2, ſocieties were inſtituted at London and Edinburgh, for the purpoſe of procuring an abolition of the ſlave trade; and petitions to parliament for that purpoſe were obtained from almoſt every county and town in Great Britain. But the ſucceſs of their petitions, from the general prevalence of democratic principles in Europe, the miſchiefs conſequent upon the ſudden abolition of ſlavery in the French colonies, and other cauſes, was not ſo rapid as perſons of humanity could have wiſhed, and therefore the ſlave trade, though then promiſed to be aboliſhed in 1796, was permitted to be carried on for nearly ten years after, when it was finally aboliſhed by act of Parliament; and every effort ſeems now (1811) to be making, in the moſt liberal manner, by the government of Great Britain, as well as by the oppoſition, who claim the credit of the abolition to their own party, to make the prohibition complete, and to induce other countries to concur in it.

(8.) Negroes, White. See Albino and Heliophobi.

NEGROLAND, or Nigritia, a country of Africa, lying next to Guinea towards the north, and extending from 18° of W. to 150° of E. lon. and from 10° to 20° of lat. N. On the N. it is bounded by Zara or the Deſart; on the E. by countries unknown; on the S. by Guinea; and on the W. by the Atlantic Ocean; and is watered by the rivers Niger and Senegal, which run through it from W. to E. The Europeans have ſettlements on the coaſts of this country, eſpecially near the mouths of the Niger and Gambia, which laſt was ſuppoſed to be a branch of the former. A great number of nations inhabit the banks of the rivers; ſome Pagans, ſome Mohammedans, of different languages, and independent of one another. The country is fruitful, eſpecially along the rivers; abounding in rice, Guinea grain, and Indian corn, where it is cultivated; and with cocoa nuts, plantains, pulſe, palm-trees, and tropical fruits; nor is it deſtitute of cattle, and a variety of other animals, particularly ſuch as abound in Guinea. See Guinea, § 3. Negroland is fertilized by the overflowing of the Niger and Gambia, as Egypt is by the Nile. It is now fully aſcertained that the Gambia is *not* a branch of the Niger. See Niger, N° 2. As far as the Europeans have penetrated up the country, they appear to be diſtinct; and the Mandingo negroes affirm that the Gambia has a different origin. The entrance into the river Senegal is narrow and ſomewhat difficult, by reaſon of its immoveable bar and ſandy ſhoals, as well as he iſlands at the mouth of it, and the canals and marſhes that clog it; but after ſailing up eight or en leagues, it is found broad and deep, and fit o carry large veſſels; and, excepting about five or ſix leagues on each ſide above the mouth, which is ſandy and barren ground, the banks are covered with ſtately trees and villages, and he country in general is fertile and well watered; for, like the Nile, this river overflows its banks for many leagues, and enriches the land to a great degree, though, for want of ſkill, the inhabitants do not reap the advantages which they might obtain from its fertility. The people on both ſides of the river live as near to it as they can, and feed great herds of cattle, ſowing large and ſmall millet, the former of which is called by us *Turkey wheat*, in great quantities, and with great ncreaſe. If the river fails of overflowing at its uſual ſeaſon, a great ſcarcity enſues in the adjacent country; and, even when it overflows regularly, t breeds ſuch vaſt flights of graſshoppers and nſects, as quite darken the air, and frequently devour all the product of the earth; in which caſe he people kill thoſe inſects and eat them; which hey do either by pounding in leathern bags, and then boiling them in milk, or, which is eckoned the more delicious method, by frying or broiling them over a light blaze, in a frying-pan ull of holes. Thus the legs and wings of the nſects are burnt off, and the reſt of the body is ufficiently roaſted to be eaten as a dainty, which hey look upon to be very wholeſome and nouriſhing. On the NNE. and SE. of the iſland f Senegal, the country, as far as it is known, is ver-run with woods and marſhes; the Senegal, Gambia, and Niger, which were looked upon as ome branches of one immenſe river, but now found o be diſtinct, paſſing through it to the Atlantic. During the rainy months, which begin in July nd continue to October, they lay the whole ountry under water; and indeed the ſudden riſe f theſe rivers is incredible to ſuch as are not cquainted with the violent rains that fall beween the tropics. At Galam, 900 miles from he mouth of the Senegal, the waters riſe 150 feet erpendicular from the bed of the river. At the land of Senegal, the river riſes gradually, during he rainy ſeaſon, above 20 feet perpendicular over art of that flat coaſt; which of itſelf ſo freſhens he water, that ſhips lying at anchor, at the iſtance of three leagues from its mouth, generally make uſe of it, and fill their water there for their oyage home. When the rains are at an end, which happens ſoon in October, the intenſe heat f the ſun uſually dries up thoſe ſtagnating waters which lie on the higher parts, and the remainder form lakes and marſhes, in which are found all ſorts of dead animals. At laſt, thoſe too are quite dried up; and then the effluvia that ariſe are almoſt quite inſupportable. At this ſeaſon the winds blow ſo hot from the land, that they may be compared to the heat proceeding from the mouth of an oven, and they bring with them an intolerable ſmell. The wolves, tigers, lions, and other wild beaſts, then reſort to the river, ſteeping their body under water, and only their ſnout above it for the ſake of breathing. The birds ſoar to an immenſe height in the air, and fly a vaſt way over the ſea, where they continue till the wind changes, and comes from the weſt.

NEGROMANCY. See Necromancy.

(1.) NEGROPONT, anciently Euboea, an iſland of the Archipelago, ſtretching along the E. coaſt of Achaia or Livadia, from which it is ſeparated by a narrow channel, called the *Euripus*. This ſtrait is ſo narrow, that the iſland is joined to the continent by a bridge thrown over it; and here it is thought there was formerly an iſthmus. The irregularity of the tides in the Euripus hath, from the remoteſt antiquity, been very remarkable. See Euripus, N° 1. The iſland is 90 miles long and 25 broad in the wideſt part; and produces corn, oil, fruit, and cattle, in great abundance.

(2.) Negropont, the capital of the above iſland (N° 1.), is walled, and contains about 15,000 inhabitants; the Chriſtians are ſaid to be much more numerous than the Turks. The captain baſhaw, or admiral of Turkey, who is alſo governor of the city, the iſland, and the adjacent continent of Greece, reſides here; and the harbour, which is very ſafe and ſpacious, is ſeldom without a fleet of galleys, ready to be put to ſea againſt the pirates and the Malteſe. A part of the bridge between the city and the coaſt of Greece, conſiſts of a drawbridge no wider than juſt to let a galley paſs through.

Negro's Island, one of the Philippines, between Panay and Sibu.

NEHAVAND, or NEHAVEND, } an ancient town of Perſia, in Irak, ſaid to have been originally founded by the patriarch Noah, and named Nouhavend. A battle was fought near it, A. D. 638, between the kaliph Omar and Jezdegerd king of Perſia, in which the latter loſt his life and his kingdom. It is 21 miles S. of Amadan, according to Mr Cruttwell, or 55 according to Dr Brookes, and 70 NW. of Iſpahan. Lon. 47. 10. E. Lat. 34. 20. N.

(1.) NEHEMIAH, or Neemias [Hebrew, from נחם, he reſted, and יה, the Lord, i. e. the Lord's reſt], ſon of Hachaliah, was born at Babylon during the captivity (Neh. i. 1, 2, &c.) He was, according to ſome, of the race of the prieſts, but, others think, of the tribe of Judah and the royal family. The former ſupport their opinion by a paſſage in Ezra (x. 10.) where he is called a prieſt; but the latter argue, 1ſt, That Nehemiah having governed the republic of the Jews for a conſiderable time, there is great probability he was of that tribe of which the kings always were. 2dly, That the office of cup-bearer to the king of Perſia, to which Nehemiah was promoted, is a proof that he was of an illuſtrious family; and, (2, 3.) **Neitra**, a town and territory of Hungary, on the above river, defended by a caſtle. In 1619, the town and fort were taken by Bethlangabor; in 1623 by the Turks, but retaken in 1624. They are 34 miles N. of Gran.

NEIUS Mons, in ancient geography, a mountain of Ithaca; at the foot of which ſtood Ithaca, a town of the iſland of that name. *Homer.*

NELEUS, in fabulous hiſtory, king of Pylos, the ſon of Neptune by Tyro, and the twin brother of Pelias. (See Pelias.) He joined his brother in uſurping the kingdom of Iolchos, but after a ſhort conjunct reign, Neleus was expelled, and fled to Aphareus K. of Meſſenia, who received him kindly, and allowed him to build the city of Pylos. Neleus married Chloris, the daughter of Amphion, by whom he had a daughter named Pero, and 12 ſons, who were all killed by Hercules, except Nestor. Neleus promiſed his daughter in marriage to the hero who ſhould bring him the bulls of Iphiclus. Melampus accompliſhed this for his brother Bias. See Melampus.

(1.) **NELSON, Robert**, F. R. S. a learned and pious Engliſh gentleman, the ſon of Mr John Nelſon, a Turkey merchant, was born at London, in June 1656. He was educated at St Paul's, London, and at Trinity College, Cambridge. In 1680 he was choſen F. R. S. and ſet out with his friend and ſchool-fellow Dr Edmund Halley, on his travels, in Dec. 1680. At Rome, he became acquainted with Lady Theophila Lucy, widow of Sir Kingſmill Lucy of Broxburne, Bart. and 2d daughter of George E. of Berkely, whom he married after his arrival in England in 1682. He was ignorant that ſhe had adopted the Roman Catholic religion; and when he diſcovered it, he uſed every meaſure in his power to make her return to the proteſtant faith without effect. Tillotſon laments her caſe on that account, and even was afraid of the influence ſhe might have upon her huſband. But Mr Nelſon's religion was too much the reſult of his reaſon to be ſhaken by his love, which was equally ſteady. Her change of religion made no change in his affection for her; and when her bad ſtate of health obliged her to go and drink the waters at Aix, he attended her thither in 1688: and took a 2d trip to Italy, with her, her ſon and daughter. He returned through Germany to the Hague, where he ſtaid ſome time with Lord Durſley, who was married to his wife's ſiſter. He arrived in England in the end of 1691; where, being averſe to the Revolution, he declared himſelf a nonjuror. Upon the death of Abp. Tillotſon, who expired in his arms in 1694, Mr Nelſon was very inſtrumental in procuring his widow's penſion from the crown to be increaſed from 400l. to 600l. *per ann.* Among his new nonjurant connections was Mr Kettlewell, who had reſigned his living at Coleſhill in Warwickſhire on account of the oaths, and reſided in London. By his advice Mr Nelſon publiſhed many works of piety, which are deſervedly eſteemed; while Mr Nelſon encouraged Kettlewell to proſecute ſome works, which otherwiſe would not have ſeen the light. At the ſame time he engaged zealouſly in every public ſcheme for promoting the honour and intereſt, as well as the faith and practice of true Chriſtianity, at home and abroad; beſides ſchemes for building, repairing, and endowing churches, and charity ſchools. Upon the death of Dr William Lloyed, the deprived Bp. of Norwich, in the end of 1709, he, by the advice of Dr Kenn, returned to the communion of the church of England. Mr Nelſon's tutor, Dr George Bull, Bp. of St David's, dying this year, he was prevailed upon by that prelate's ſon to draw up an account of his father's life and writings. It was publiſhed in 1713; and as our author had long before laboured under an aſthma and dropſy in the breaſt, the diſtemper grew to ſuch a height, that, for the benefit of the air, he retired at length to Kenſington, where he expired on the 16th Jan. 1714-15, aged 59. He publiſhed ſeveral works of piety, and left his whole eſtate to pious uſes, particularly to charity ſchools.

(2.) **Nelson, Horatio, Lord Viſcount**, was born in 1758, at Burnham Thorpe in Norfolk, of which pariſh his father Edmund was Rector. He was educated at the ſchool of North Walſham; but we know nothing particular of his boyiſh years, nor have we any detail of the nature and progreſs of his ſtudies. He left ſchool at the early age of twelve; and having diſplayed a ſtrong diſpoſition for the ſea ſervice, he was rated a midſhipman on board the Raiſonable of 64 guns, commanded by his maternal uncle, captain Maurice Suckling. In April 1773, in conſequence of an application by the Royal Society to the earl of Sandwich, a voyage of diſcovery to the north pole was ordered, under the honourable Conſtantine John Phipps, afterwards lord Mulgrave. By the inſtructions iſſued on this occaſion boys were ſtrictly prohibited from being received on board. But the enterpriſing mind and earneſt entreaty of young Nelſon enabled him to ſurmount this difficulty, and he was actually appointed cockſwain to captain Lutwidge.

In October, when the ſhip returned, a ſquadron was fitting out for the Eaſt Indies. Nelſon uſed every effort to be appointed to one of the ſhips, and again ſucceeded. He was ſtationed in the foretop to keep watch on board the Seahorſe of 20 guns, captain Farmer, by whom he was ſoon after removed to the quarter deck. He was paſſed lieutenant on the 8th of April 1777, and on the 9th had a commiſſion as ſecond lieutenant of the Loweſtoffe of 32 guns, captain Locker, in which ſituation he reached Jamaica. Here, feeling his profeſſional efforts circumſcribed, he entreated the command of a ſchooner which attended the Loweſtoffe as a tender. He obtained his requeſt, and availed himſelf of it to acquire a practical knowledge of all the intricate paſſages through the iſlands lying to the north of Hiſpaniola. When Sir Peter Parker arrived on the Jamaica ſtation in 1778, he appointed Nelſon to be third lieutenant of his own ſhip, the Briſtol, in which he roſe to be firſt lieutenant, and in which he terminated his ſervices in that ſubordinate rank. On the 11th of June 1779, he was made poſt-captain, and was ſoon after appointed to the command of the Hinchinbroke; and, in expectation of an attack on Jamaica, the command of the batteries of Port Royal was entruſted to him. In January 1[illegible] it was determined to reduce Fort Julia, on the river St John, in the gulf of Mexico. To capture

Nelſon was entruſted the command of the naval lepartment, and to major Polſon that of the miitary, in this arduous and intereſting undertaking. Nelſon on this occaſion diſplayed his uſual ſagacity and intrepidity. He quitted his ſhip, and diected and ſuperintended the tranſporting of the roops, in boats, for the ſpace of 300 miles up a iver which none but Spaniards had ever ventured o navigate ſince the time of the Buccaneers; and o his gallantry, ſkill, and conduct, the ſucceſs of he expedition is chiefly to be attributed. He was afterwards appointed to the Janus, on the Jamaica ſtation. He was obliged to return to England on account of bad health, and was appointed o the command of the Albemarle in Auguſt 1781; which being ſtationed, in the following winer, in the north ſeas, was a ſevere trial to his feeble conſtitution. In October 1782, he joined the leet under Sir Samuel Hood, and was actively and honourably employed in the Weſt Indies till he end of the war. In the autumn following he went o France, where he continued till the ſpring of 1784; at which time he was appointed to the command of the Boreas frigate of 28 guns, on the Leeward Iſlands ſtation. Here he continued till une 1787. In the month of March that year, he married the widow of Dr Neſbit, of the iſland of Nevis, with whom (on his ſhip being paid off n November) he retired to his father's parſonage in Norfolk. In 1793, he got the command of he Agamemnon, of 64 guns, ſtationed in the Mediterranean, under lord Hood; who repoſed the moſt unlimited confidence, as well in his talents as in his courage. Whatever difficult enterprize ord Hood thought neceſſary, the conduct of it was entruſted to Nelſon. At Toulon, Baſtia, and Calvi, he increaſed his well-earned reputation; and ord Hood did not fail to record the ſtriking progreſs of his increaſing fame. At the ſiege of Calvi Nelſon loſt the ſight of his right eye, a quanity of ſand having been driven with violence againſt his face by a ſhot from the enemy ſtriking he battery which he commanded. He equally njoyed the confidence and eſteem of admiral Hoham, who ſucceeded lord Hood, and eminently diſinguiſhed himſelf in the actions which took place with the French fleet on the 13th and 14th of March, on the 13th of July 1795, and in co-operaing with general De Vins on the coaſt of Genoa. When admiral Hotham was ſuperſeded by Sir John Jervis, Nelſon received the well-merited honour of a pendant of diſtinction, and quitted he Agamemnon for the Captain of 74 guns, with he title of commodore. He was for ſeveral months continually employed in the very active nd arduous ſervice of the blockade of Leghorn, he taking of Porto Ferajo, with the iſland of Caprea, and finally, in the evacuation of Baſtia; nd though it does not appear that his ſervices acquired the reputation in his own country which hey merited and which he expected, it is now certain that he did more at this very period to iluſtrate the Britiſh character, and extend the Briiſh influence in Italy, than any other individual at hat active and difficult period. In December 1796, he hoiſted his pendant on board La Minerva frigate, and was diſpatched along with La Blanche to Porto Ferrajo, to bring the naval ſtores left there to Gibraltar. In the courſe of this ſervice he took a large Spaniſh frigate of 40 guns, after a long and ſevere action. He contributed eſſentially to the great and important victory gained, with a very inferior force, over the Spaniſh fleet by Sir John Jervis, on the 14th of February 1797; and in April that year he was raiſed to the rank of rear admiral of the blue. In May, he ſhifted his flag from the Captain to the Theſeus, and was appointed to command the inner ſquadron in the blockade of Cadiz. In the attack on the Spaniſh gun boats in July, he was boarded in his barge (having only ten men and the cockſwain) by an enemy's boat with thirty men and officers. The conflict was long, terrible, and doubtful, eighteen of the Spaniards were killed; and the remainder, almoſt all wounded, at length yielded to a force ſtill numerically inferior. On the 15th of July, in the ſame year, he made an unſucceſsful attack on Santa Cruz in Teneriffe; but ſuch were his conduct and intrepidity, that though he loſt his arm by a cannon ſhot, he ſucceeded, where moſt others would have failed, in compelling the Spaniards to allow him to re-embark without moleſtation. He was detached by lord St Vincent, in 1798, with 12 ſail of the line and one ſhip of 50 guns, in purſuit of the French, to the coaſt of Egypt, whoſe fleet conſiſted of 13 ſail of the line, four frigates, and ſeveral gun boats, beſides being protected by land batteries. This fleet he attacked at ſun-ſet on the 1ſt of Auguſt, took nine ſail of the line, and deſtroyed two; two only eſcaped, and they were afterwards taken. He was wounded in the head, as he thought himſelf mortally, and diſplayed uncommon calmneſs and fortitude in that conviction whilſt it laſted, making his laſt arrangements with equal deciſion and tranquillity. To the great joy of the fleet the wound was found not to be mortal. He had received the honour of the red ribbon in conſequence of his conduct in the action off Cape St Vincent. He was raiſed to the honour of the peerage in conſequence of this at Aboukir, by the ſtyle and title of baron Nelſon of the Nile and Aboukir, and of Burnham Thorpe, in the county of Norfolk. He was alſo created duke of Bronte in Sicily by the king of Naples, with an eſtate of 3000l. Sterling a year. He had alſo conferred upon him an order of knighthood by the king of Naples, by the grand ſegnior, and by the emperor of Ruſſia. On the 2d of April 1802, he conducted the attack upon Copenhagen, where, in circumſtances of peculiar difficulty, and without having the chief command, he effectually deſtroyed that formidable northern confederacy, which threatened the ruin of this country. In this tranſaction he not only diſplayed his uſual gallantry and naval ſkill, but that profound ſagacity, that intimate knowledge of human nature, and of the political relations and intereſts of his country, with that accurate calculation of the impreſſion of events on the human mind, which we ſhould ſcarcely have anticipated in a man ſo wholly devoted to profeſſional purſuits. In conſequence of this victory he was raiſed to the rank of viſcount in the Britiſh peerage.

One of the moſt important ſervices which lord Nelſon performed to his country, though unattended by any thing brilliant, was his purſuit of the combined fleets of France and Spain to the Weſt Indies, which engaged him for four months, which defeated by the very terror of his name the object of the combined ſquadron, and led to the victory gained by Sir Robert Calder in 1805. On the 21ſt of October, this ſame year, his laſt action was fought, and his moſt active and uſeful life cloſed, with a brilliancy which has never been ſurpaſſed. The moment he ſaw the combined fleet, ſuperior in point of number to his own by ſix ſhips, and much ſuperior in point of men and guns even than that proportion at firſt indicated, he made his arrangements with his uſual ſkill, and his calculation of ſucceſs with that deciſion of mind, by which, in his naval combinations, he ſeems to have ſurpaſſed alike his predeceſſors and his contemporaries. His laſt ſignal (which doubtleſs produced an indeſcribable vibration in every breaſt, and which was ſo admirably fulfilled), will, we truſt, never be forgotten by his grateful country, "ENGLAND EXPECTS EVERY MAN TO DO HIS DUTY." Twenty one ſhips of the line were taken or deſtroyed, and every circumſtance combined to confer on this aſtoniſhing victory the utmoſt poſſible importance. Yet we believe the ſenſation was univerſal throughout the country that it was too dearly purchaſed; and even the enemy felt ſome conſolation under his diſaſter, in reflecting, that he to whom it was due had fallen in the glorious enterprize. He lived three hours after his fatal wound; and, though he ſuffered very ſeverely, his heroiſm continued to the laſt, and he gave directions reſpecting the management of the fleet and prizes till within a few inſtants of his diſſolution. He had, previous to this, 3000l. ſterl. a-year voted by parliament for his own life and that of his two next heirs; a preſent from the eaſt India company of 10,000l. ſterl.; a diamond aigrette from the grand ſegnior worth 4000l ſterl.; a diamond box from the emperor of Ruſſia worth 2500l. ſterl.; preſents from the king of Naples, beſides the eſtate of Bronte, worth 5000l. ſterl.; furniſhing many effectual proofs that his character was juſtly eſteemed in every part of Europe as well as in his own country. After the battle of Trafalgar his body was brought home in the Victory, which bore his flag, and in which he fell. He was buried at the public expenſe, and in the moſt ſplendid manner, under the dome of St Paul's cathedral in London, where a monument was ordered to be erected to his memory. His heir was raiſed to the rank of an earl in the peerage; and, with a bounty becoming a great and grateful country, parliament voted a ſum of money for the purchaſe of an eſtate for his heirs; and ſplendid monuments, proofs of the public feeling, have been erected throughout the empire by voluntary contribution, to perpetuate his memory, which will never die, and his country's gratitude, which will never be forgotten, while that country (ſo long and ſo juſtly dear to every great and liberal mind) ſhall deſerve to exiſt.

We have it not in our power to attempt to give a detailed view of the character of the illuſtrious hero, of whoſe ſhort and brilliant career we have furniſhed this haſty ſketch. As a naval commander he has never, even in our hiſtory, been ſurpaſſed, nor, we ſeriouſly believe, equalled. The attentive obſerver will at the ſame time remark, that his political talents were very conſiderable; that he was well acquainted with human character; that he knew how to influence public opinion, and to give to the events and circumſtances with which he was connected a moral effect, to which mere profeſſional ſuperiority was not equal. He was greedy of fame, the paſſion of great and noble minds; but the love of his country predominated over every other paſſion by which he was actuated;—a noble and generous ſentiment, the great ſource of illuſtrious conduct and diſintereſted devotion, which in this degenerate age we fear to be in danger of loſing under the maſk of a falſe philoſophy and ſpurious philanthropy.

(3.) NELSON, a county of Kentucky. Bards-town is the capital.

(4.) NELSON, or NELSON'S FORT, a fort and ſettlement of Labrador, W. of Hudſon's Bay, at the mouth of Nelſon's river, originally built by the French, but now belonging to the Hudſon's Bay company, uſeful for their trade with the natives. It is 250 miles SE of Churchill Fort, and 600 NW of Fort Rupert. Lon. 92. 35. W. Lat. 57. 7. N.

(5.) NELSON, or NELSON'S RIVER, a river of N. America, which runs into Hudſon's Bay, at Nelſon.

NEMÆA. See NEMEA.

NEMAUSUM, or NEMAUSUS, in ancient geography, the capital of the Arecomici, in Gallia Narbonenſis; a colony, with the ſurname *Auguſta*. In it ſtands a Roman amphitheatre, which is ſtill almoſt entire. It is now called NISMES.

NEM. CON. See NEMINE.

(1.) NEMEA, a river of Achai, running between Sicyon and Corinth, the common boundary of both territories, and falling into the Corinthian bay. *Strabo. Livy.*

(2.) NEMEA, in ancient geography, a [illegible] town, or diſtrict, ſituated between Cleonæ and Philus in Argolis, where a grove ſtood in which the Argives celebrated the Nemean games, and where all the fabulous circumſtances of the Nemean lion were believed to have happened. The diſtrict Nemea is called *Bembinadia*, by Pliny; a village, *Bembina*, ſtanding near Nemea. (Strabo.) Stephanus places Nemea not in Elis, but on its borders; Pliny, erroneouſly, in Arcadia. In the adjoining mountain is ſtill ſhown the den of the lion, 15 ſtadia from the place *Nemea*; (*Pauſan.*) in which ſtands a conſiderable temple of Jupiter Nemæus and Cleonæus, ſo named from the vicinity of theſe two places. This place gave name to the NEMÆAN GAMES.

NEMEAN GAMES, ſo called from Nemea (N° 2.) where they were celebrated every year. The exerciſes were chariot races, and the parts of the PENTATHLON. Theſe games were inſtituted in memory of Opheltes or Archemorus, the ſon of Lycurgus and Creuſa, who was nurſed by Hypſipyle; who leaving him meadow while ſhe went to ſhow the beſiegers of Thebes a fountain, at her return found him dead, and a ſerpent twined about his neck: whence the fountain, before called *Langia*, was named *Archemorus*; and the captains, to comfort Hypſipyle, inſtituted theſe games.—Others aſcribe the inſtitution to Hercules, after his victory over the Nemean lion.—Others allow that they were inſtituted firſt in honour of Archemorus; but intermitted, and revived again by Hercules. The victors were crowned with parſley, an herb uſed at funerals, and feigned to have ſprung from Archemorus's blood. The Argives preſided at theſe games.

NEMESIANUS, Aurelius Olympius, a Latin poet, who was born at Carthage, and flouriſhed about A. D. 281, under the emperors Carus. Carinus, and Numerian: the laſt of whom was ſo fond of poetry, that he conteſted the glory with Nemeſianus, who had written a poem upon fiſhing and maritime affairs. There are ſtill extant a poem of our author called *Cynegeticon*, and four eclogues: they were publiſhed by Paulus Manutius in 1534; by Barthelet in 1613; at Leyden in 1653, with the notes of Janus Vlitias. Giraldi hath preſerved a fragment of Nemeſianus, which was communicated to him by Sannazarius, to whom we are obliged for our poet's works: for having found them written in Gothic characters, he procured them to be put into the Roman, and then ſent them to Paulus Manutius. Although this poem hath acquired ſome reputation, it is greatly inferior to thoſe of Oppian and Gratian upon the ſame ſubject; yet Nemeſianus's ſtyle is natural, and has ſome degree of elegance. His poem in the 8th century was ſo much eſteemed, that it was read among the claſſics in the public ſchools, particularly in the time of Charlemagne, as appears from a letter of the celebrated Hincmar biſhop of Rheims to his nephew Hincmar of Laon.

NEMESIS, in Pagan mythology, the daughter of Jupiter and Neceſſity, or, according to others, of Oceanus and Nox, who had the care of avenging the crimes which human juſtice left unpuniſhed. She was alſo called *Adraſtæa*, becauſe Adraſtus king of Argos firſt raiſed an altar to her; and RHAMNUSIA, from her having a magnificent temple at Rhamnus in Attica.—She had likewiſe a temple at Rome in the Capitol. She is repreſented with a ſtern countenance, holding a whip in one hand and a pair of ſcales in the other.

NEMESIUS, a Greek philoſopher who embraced Chriſtianity, and was made biſhop of Emeſa in Phœnicia, where he was born; he flouriſhed in the beginning of the fifth century. We have a piece by him, entitled *De natura hominis*, in which he refutes the fatality of the Stoics and the errors of the Manichees, the Apollinariſts, and the Eunomians; but he eſpouſes the opinion of Origen concerning the pre-exiſtence of ſouls. This treatiſe was tranſlated by Valla, and printed in 1535. Another verſion was made of it by Ellebodius, and printed in 1665; it is alſo inſerted in the *Bibliotheca patrum*, in Greek and Latin. A 3d edition was publiſhed at Oxford in 1671, folio, with a learned preface, wherein the editor endeavours to prove, from a paſſage in this book, that the circulation of the blood was known to Nemeſius; which, however, was ſince ſhown to be a miſtake by Dr Friend, in his *Hiſtory of Phyſic*.

NEMETACUM, an ancient town of Gaul, now called ARRAS.

NEMETES, an ancient people of Germany, who inhabited the country, now called SPIRE.

NEMETH UJAVAR, a populous town of Hungary, near Stiria, with walls, and a caſtle on a very high rock, entirely detached from all other mountains, delightfully ſituated among woods and corn fields; 26 miles S. of Edenburg, and 45 SW. of Raab.

NEMINE CONTRADICENTE, [Lat.] *i. e.* none contradicting it; a term chiefly uſed in parliament when any thing is carried without oppoſition; uſually contracted into *nem. con.*

NEMORALIA, feſtivals obſerved in honour of Diana, in the woods of Aricia.

NEMOSIA. See LIMASSOL.

NEMOSSUS, an ancient city of Gaul, the capital of the Arverni, now called CLERMONT. See ARVERNI, N° 2.

(1.) **NEMOURS**, Mary, of Orleans, an eminent French lady, daughter of the D. of Longueville, born in 1625. She wrote a ſpirited work, entitled *Memoirs of the War of the Fronde*: uſually printed with *Joli's works*. She died in 1707.

(2.) NEMOURS, a town of France, in the dep. of Seine and Marne, and late province of the Gatinois; ſeated on the Loing, between two hills, on the ſite of the ancient town of *Grex*: 10 miles S. of Fontainbleau, and 15 SE. of Paris. Lon. 2. 45. E. Lat. 48. 15. N.

NEN, or NINE, the chief river of Northamptonſhire, which riſes in the W. part of it, is made navigable at Northampton, leaves the county at Peterborough, and croſſing the iſle of Ely, forms part of the W. boundary of Norfolk, and falls into the German Ocean, 10 miles N. of Wiſbeach.

NENAGH, a poſt town of Ireland, in Tipperary, 75 miles from Dublin; ſituated on a branch of the Shannon which runs into Lough Derg. Here ſtand the ruins of an old caſtle, called *Nenagh-round*. Alſo thoſe of an hoſpital founded in 1200, for canons of St Auguſtin. In the reign of Henry III. a rich friar for conventual Franciſcans was founded here. Here is a barrack for two troops of horſe. This town was burnt on St Stephen's day 1348, by the Iriſh. It has 4 fairs, and lies 19 miles NE. of Limerick, and 23 N. of Caſhel.

NENAWEHUCKS, a nation of N. American Indians, who inhabit the banks of Severn lake and river.

NENEEVA, one of the FRIENDLY ISLANDS, 29 miles NE. of Anamooka.

NENIA, or NÆNIA, in ancient poetry, a kind of funeral ſong, ſung to the muſic of flutes at the obſequies of the dead. Authors repreſent them as ſorry compoſitions, ſung by hired women-mourners called *Præficæ*. The firſt riſe of theſe Nenia is aſcribed to the phyſicians. The goddeſs of tears and funerals was called NÆNIA; whom ſome ſuppoſe to have given that name to the funeral ſong, and others to have been named from it.

NENNIUS, an ancient Britiſh hiſtorian of the

9th century, who wrote a Hiſtory of Britain in Latin. A MS. of this work is among the Cottonian MSS. in the British Muſeum

NENTHORN, a pariſh of Scotland, in Berwickſhire, about 4 miles ſquare; ſo named from ſome ancient large *thorn* trees; containing 1900 acres. The ſurface is moſtly level, except an eminence in the north; the ſoil fertile; the climate healthy. The population in 1792, was 400; decreaſe 97 ſince 1755. Whin-ſtone, free-ſtone and marle abound. The incloſures are excellent.

(1.) * NENUPHAR. *n. ſ.* [*nymphæa*, Latin.] Water lily, or water roſe.

(2.) NENUPHAR, in botany. See NYMPHÆA.

NEOCÆSARIA, a town of Pontus on the S. or left ſide of the Lycus. (*Pliny.*) About A. D. 342, when Leontius and Salluſtius were conſuls, it was entirely ruined by a dreadful earthquake, no edifice having withſtood the violence of the ſhock, except the church and the biſhop's habitation, who was ſaved, with the clergy and ſome other pious perſons, while the reſt of the inhabitants were buried in its ruins.

NEOCLES, 1. an Athenian philoſopher, the father, or, according to Cicero, brother of Epicurus: 2. The father of Themiſtocles.

(1.) NEOMAGUS, according to Ptolemy, or NOVIOMAGUS, of Antonine's pillar; a town of the Regni in Britain; now thought to be Guildford in Surry, by Lhuyd; or Croydon, by Talbot. But Camden takes it to be Woodcote, two miles S. of Croydon, where traces of an ancient town are ſtill to be ſeen.

(2.) NEOMAGUS, or NOVIOMAGUS, a town of the Triviri on the Moſelle: now called NUMAGEN, 14 miles E. of Triers.

(3.) NEOMAGUS, or NOVIOMAGUS LEXOVIORUM, a town of Gallia Celticar: now named LISIEUX, in Normandy.

(4.) NEOMAGUS, or NOVIOMAGUS NEMETUM; a town of the Nemeti, in Germany, now called SPIRE, on the left or weſt ſide of the Rhine.

(5.) NEOMAGUS, a town of Gallia Narbonenſis, on the confines of the Tricaſtini, now named NYONS.

(1.) NEOMENIA, or NOUMENIA, a feſtival of the ancient Greeks, at the beginning of every lunar month, which, as the name imports, was obſerved upon the day of the new moon, in honour of all the gods, but eſpecially Apollo, who was called NEOMENIOS, becauſe the ſun is the fountain of light; and whatever diſtinction of times and ſeaſons may be taken from other planets, yet they are all owing to him as the original of thoſe borrowed rays by which they ſhine.—The games and public entertainments at theſe feſtivals were made by the rich, to whoſe tables the poor flocked in great numbers. The Athenians at theſe times offered ſolemn prayers and ſacrifices for the proſperity of their country during the enſuing month. See GAMES, § 3.

(2.) NEOMENIA, or feaſt of the new moon, was alſo a feſtival of the Jews, on which peculiar ſacrifices were appointed; and on which they had a ſort of family entertainment and rejoicing. The moſt celebrated neomenia was that at the beginning of the civil year, or firſt day of the month Tiſri, on which no ſervile labour was performed: they then offered particular burnt ſacrifices, and ſounded the trumpets of the temple. The modern Jews keep the neomenia only as a feaſt of devotion, which any one may obſerve or not as he pleaſes.

NEOMENIOS, a title of Apollo. See NEOMENIA, N° 1.

NEOMINAS, a large river of Peru, about 40 miles NW. of the Bonaventura. It falls into the S. Pacific Ocean, by two mouths, oppoſite Palmas iſland.

NEON, in ancient geography; 1. a town of Phocis: 2. a town on the top of Parnaſſus.

NEONE, in modern geography, a town of European Turkey, in Theſſaly; 28 m. N. of Zeiton.

(1.) * NEOPHYTE. *n. ſ.* [*neophyte*, Fr. [illegible] φυω.] One regenerated; a convert.

(2.) NEOPHYTES, [*i. e. new plants*;] a name given by the ancient Chriſtians to thoſe heathens who had newly embraced the faith; ſuch perſons being conſidered as regenerated, or born anew by baptiſm. The term has been alſo uſed for new prieſts, or thoſe juſt admitted into orders, and ſometimes for the novices in monaſteries. It is ſtill applied to the converts made by the miſſionaries among the infidels.

NEOPOLEOS. See LIMASSOL.

(1.) NEOPTOLEMUS. See PYRRHUS, N°

(2.) NEOPTOLEMUS, king of the Moloſſi, father of Olympias, and grandfather of Alexander the Great.

(3.) NEOPTOLEMUS, king of Epirus, uncle of the celebrated PYRRHUS, whom he attempted to poiſon, for which he was put to death.

(4.) NEOPTOLEMUS, one of Alexander's generals and relations; the firſt who climbed the walls of Gaza, when it was taken. After Alexander's death he was governor of Armenia; but was killed by Eumenes, A. A. C. 321.

* NEOTERICK. *adj.* [*neotericus*, Lat.] Modern; novel; late.—We are not to be guided either by the miſreports of ſome ancients, or the capricios of one or two *neotericks*. *Grew.*

NEOTS, ST. See NEEDS, N° 2.

(1.) * NEP. *n. ſ.* [*nepeta*, Lat.] An herb.

(2.) NEP. See NEPETA.

NEPA, in zoology, a genus of inſects belonging to the order of hemiptera. The roſtrum is inflected; the antennæ are ſhorter than the thorax, and the hind feet are hairy, and fitted for ſwimming. There are 7 ſpecies. The four wings are folded together croſs-wiſe, with the anterior part coriaceous. The two fore feet are cheliform, and reſemble the claws of a crab; the other four are formed for walking. There are 3 of theſe ſpecies found in water, where they dwell, as do their larvæ and chryſalids. It is likewiſe in the water that we find the eggs of the water ſcorpion. The eggs, of an oblong ſhape, have at one of their extremities two or more briſtles or hairs. The inſect ſinks its egg into the ſtalk of a bull-ruſh or ſome other water plant, ſo that the egg lies concealed, and only the hairs or briſtles ſtick out and are to be ſeen. One may eaſily preſerve in water thoſe ſtalks loaded with eggs, and ſee young water-ſcorpions hatched under one's own roof, or at leaſt their larvæ. Theſe inſects are voracious, and feed on other aquatic [illegible] which they pierce and tear with their ſharp roſtrum, while they hold them with the forceps of heir fore-feet.—They fly well, eſpecially in the vening and night, and they convey themſelves rom one pool to another, eſpecially when that hey are in begins to dry up. Mr Geoffroy aſſerts, hat the pedes cheliformes, or fore feet of the nepa, are the antennæ of the inſect, which he ſays has but *four* feet.

NEPAL, a kingdom of India, about 12 days journey NE. of Patna. The climate of the low country, at the foot of the hills called TERIANI, is very unwholeſome, from March to November, and the people are often affected with putrid fevers; but the extenſive plain of Nepal, which is about 200 miles in circumference, has a good climate, and affords a moſt agreeable proſpect, reſembling an amphitheatre, covered with populous towns and villages. The 3 chief cities of Nepal are, 1. *Cat'hmandu*, which contains about 18,000 houſes, and 50,000 ſoldiers, extends 13 days journey from S. to N. to the borders of Thibet, and nearly as far from E. to W. 2. *Lelit Pattan* lies SW. of it, and contains near 24,000 houſes. 3. *B'hatgan* lies E. of Lelit Pattan, contains about 12,000 families, and is the metropolis of a diſtrict, that extends 6 days journey to the E, and borders upon the country of an independent nation, called *Ciratas*, who profeſs no religion. There are many other large towns; particularly TIMI and Cipoli, each of which contains about 8000 houſes. All the towns and cities in Nepal are well built; the houſes are of brick, 3 or 4 ſtories high, and regularly arranged. The ſtreets are paved with bricks or ſtones, with a declivity o carry off the water; and moſt ſtreets have a well built of ſtone, with ſtone conduits for the water. There are alſo large reſervoirs with ſteps for bathing. There are two ſyſtems of religion n Nepal; the one that of the Brahmins; (ſee BRAMINS, GENTOOS, and HINDOOS, § 13.) the other a ridiculous idolatry reſembling that of the Lamas of Thibet, whence it originated. (See LAMA and THIBET.) The temples are magnificent, rich, and expenſive; and immenſe treaſures of gold, ſilver, and jewels, are concealed in and under them. This kingdom is ſuppoſed to be very ancient, as it has long preſerved its manners, language, and independence. But about 1760, the king dying without iſſue, a bloody civil war enſued among the nobles about the ſucceſſion, which occaſioned great devaſtations, accompanied with numberleſs atrocities, villanies, and treacheries, in which even the Brahmins themſelves had a ſhare.

(1.) NEPEAN, an iſland of the S. Pacific Ocean, near the S. coaſt of Norfolk Iſland, ſo named rom Sir Evan Nepean.

(2.) NEPEAN SOUND, a bay of the N. Pacific Ocean, on the W. coaſt of N. America. Lon. 127. 30. W. Lat. 53. 12. N.

* NEPENTHE. *n.ſ.* [νη and πενθος.] A drug that drives away all pains.—

Lull'd with the ſweet *nepenthe* of a court.
Pope.

NEPENTHES, in botany, a genus of the tetrandria order, belonging to the gynandria claſs of plants, and in the natural method ranking among thoſe of which the order is doubtful. The calyx is quadripartite; there is no corolla; the capſule is quadrilocular.

NEPETA, CATMINT, or NEP, in botany, a genus of the gymnoſpermia order, belonging to the didynamia claſs of plants; and in the natural method ranking under the 42d order, *Verticillatæ.* The under lip of the corolla has a ſmall middle ſegment crenated; the margin of the throat is reflexed; the ſtamina approach one another. There are 14 ſpecies; the moſt remarkable is

NEPETA CATARIA, common nep or catmint. This is a native of many parts of Britain, growing about hedges and in waſte places. The ſtalk is a yard high, and branched; the leaves are hoary; the flowers fleſh coloured, growing verticillate in ſpikes at the tops of the branches: the middle ſegment of the lower lip is ſpotted with red. The plant has a bitter taſte, and ſtrong ſmell, not unlike pennyroyal. An infuſion of this plant is reckoned a good cephalic and emmenagogue; being found very efficacious in chlorotic caſes. Two ounces of the expreſſed juice may be given for a doſe. It is called *catmint*, becauſe cats are very fond of it, eſpecially when it is withered: for they will roll themſelves on it, and tear it to pieces, chewing it in their mouths with great pleaſure. Mr Ray mentions his having tranſplanted ſome of the plants from the fields into his garden, which were ſoon deſtroyed by the cats; but they did not meddle with the plants which came up from ſeeds in his garden: this verifies an old proverb, viz. "If you ſet it, the cats will eat it; if you ſow it, the cats will not know it." Mr Withering is of opinion, that where there is a quantity of plants growing together, the cats will not meddle with them; but Mr Millar aſſures us, that he has frequently tranſplanted one of theſe plants from another part of the garden, within two feet of which ſome came up from ſeeds; in which caſe the latter have remained unhurt, when the former have been torn to pieces and deſtroyed: he acknowledges, however, that where there is a large quantity of the herb growing together, they will not meddle with it. This plant is very hardy, and eaſily propagated by ſeeds. If ſown upon a poor dry ſoil, the plants will not grow too rank, but will continue longer, and appear much handſomer, than in rich ground, where they grow too luxuriant, and have not ſo ſtrong a ſcent.

NEPHALIA, ancient Grecian feſtivals, held in honour of MNEMOSYNE, the mother of the MUSES.

NEPHELE, in fabulous hiſtory, the firſt wife of ATHAMAS, K. of Thebes, and mother of Phryxus and Helle. See PHRYXUS.

NEPHELIUM, in botany, a genus of the pentandria order, belonging to the monœcia claſs of plants. The male calyx is quinquidentate; there is no corolla.—There are two germens and two ſtyles on each: the fruit are two dry plums, muricated, and monoſpermous.

(1.) * NEPHEW. *n.ſ.* [*nepos*, Lat. *neveu*, Fr.] 1. The ſon of a brother.—

Immortal offſpring of my brother Jove;
My brighteſt *nephew*, and whom beſt I love.
Dryden.

—I

—I aſk, whether in the inheriting of this paternal power, the grandſon by a daughter hath a right before a *nephew* by a brother? *Locke.* 2. The grandſon. Out of uſe.—With what intent they were firſt publiſhed, thoſe words of the *nephew* of Jeſus do plainly ſignify, after that my grand-father, Jeſus, had given himſelf to the reading of the law, and the prophets, he propoſed alſo to write ſomething pertaining to. *Hooker.*—

Her ſire at length is kind,
Prepares his empire for his daughter's eaſe,
And for his hatching *nephews* ſmooths the ſeas.
Dryden.

3. Deſcendant, however diſtant. Out of uſe.

All the ſons of theſe five brethren reign'd—
By due ſucceſs, and all their *nephews* late,
Even thrice eleven deſcents the crown retain'd.
Spenſer.

(2.) Nephew, (§ 1. *def.* 1.) according to the civil law, is in the third degree of conſanguinity, but according to the canon in the ſecond.

NEPHIN, a mountain of Ireland in Mayo, 10 miles N. of Caſtlebar.

(1.) * NEPHRITICK. *adj.* [νεφριτικος; *nephretique*, Fr.] 1. Belonging to the organs of urine. 2. Troubled with the ſtone.—The diet of *nephritic* perſons ought to be oppoſite to the alkaleſcent nature of the ſalt in their blood. *Arbuthnot.* 3. Good againſt the ſtone.—The *nephritic* ſtone is commonly of an uniform duſky green; but ſome ſamples I have ſeen of it that are variegated with white, black, and ſometimes yellow. *Woodw.*

(2.) Nephritick ſignifies belonging to the kidneys. See Kidney.

(3.) Nephritics, in pharmacy, medicines proper for diſeaſes of the kidneys, eſpecially the ſtone.—Such particularly are the roots of althæa, dog's graſs, aſparagus, ſago, pellitory of the wall, mallows, pimpinella, red chick-peaſe, peach-kernels, turpentine, &c.

(4.) Nephritic Stone. See Jade-Stone.

(5.) Nephritic Wood (*lignum nephriticum*), a wood of a very denſe and compact texture, and of a fine grain, brought to us from New Spain in ſmall blocks, in its natural ſtate, and covered with its bark. It is to be choſen of a pale colour, ſound and firm, and ſuch as has not loſt its acrid taſte; for the ſureſt teſt of it is the infuſing it in water; for a piece of it infuſed only half an hour in cold water, gives it a changeable colour, which is blue or yellow as variouſly held to the light. If the vial it is in be held between the eye and the light, the tincture appears yellow; but if the eye be placed between the light and the vial, it appears blue. We often meet with this wood adulterated with others of the ſame pale colour; but the duſkiſh black hue of the bark is a ſtriking character of this.—The tree is the *coatli* of Hernandez. It grows to the height of our pear-tree, and its wood while freſh is much of the ſame texture and colour; the leaves are ſmall and oblong, not exceeding half an inch in length, or a third of an inch in breadth; the flowers are ſmall, of a pale-yellow colour, and oblong ſhape, ſtanding in ſpikes: the cups they ſtand in are divided into five ſegments at the edge, and are covered with a reddiſh down. This is the beſt deſcription of the tree that can be collected from what has been hitherto written of it; nobody having yet had an opportunity of taking its true characters. This wood is ſaid to be a very good diuretic, and we are told it is uſed among the Indians in all diſeaſes of the kidneys and bladder, and in ſuppreſſion of urine, from whatever cauſe. It is alſo recommended in fevers, and in obſtructions of the viſcera. The way of taking it among the Indians is only an infuſion in cold water. Theſe uſes are not however properly aſcertained. See Guilandina. N° 3.

NEPHRITIS. See Medicine, *Index.*

NEPONSET, a river of Maſſachuſetts, which riſes from Muddy, Punkapay, and Maſhapay ponds, runs E. and after falling over ſeveral cataracts, and turning many mills, falls into Boſton harbour. It is navigable 4 miles above its mouth.

NEPOS, Cornelius, a celebrated Latin biographer, who flouriſhed in the time of Julius Cæſar, and lived, according to St Jerome, to the ſixth year of Auguſtus. He was an Italian, if we may credit Catullus, and born at Hoſtilia, a ſmall town of Verona, in Ciſalpine Gaul. Auſonius, however, will have it that he was born in Gaul: and they may be both in the right, as that part of Italy was in *Gallia Ciſalpina*, or *Gallia Togata*. Leander Alberti thinks Nepos was born in Verona or its neighbourhood. Cicero and Atticus were friends of our author; who wrote the lives of the Greek hiſtorians, as he himſelf atteſts in that of Dion, ſpeaking of Philiſtus. What he ſays in the lives of Cato and Hannibal, proves that he had alſo written the lives of the Latin captains and hiſtorians. He wrote ſome other excellent works which are loſt. What remains is his *Excellentium Imperatorum Vitæ*, which were long aſcribed to Æmilius Probus, who publiſhed them, as is ſaid, under his own name, to inſinuate himſelf into the favour of the emperor Theodoſius; but in the courſe of time, the fraud has been diſcovered, although ſeveral learned perſons have confounded the two authors. This piece was tranſlated into French by Claveret in 1663; and by M. le Gras, at Paris 1729, 12mo. There is an excellent tranſlation of it in Engliſh, by ſeveral hands at Oxford.

NEPOTIANUS, Flavius Popilius, a ſhort lived emperor of Rome, was nephew of Conſtantine the Great, by his ſiſter Eutropia, and on the death of his couſin Conſtans, was proclaimed emperor; but was murdered by Anicetus after one month's reign.

* NEPOTISM. *n. ſ.* [*nepotiſme*, French; *nepotiſmo*, Latin.] Fondneſs for nephews.—To this humour of *nepotiſm* Rome owes its preſent ſplendor. *Addiſon.*

NEPTHYS, in mythology, the wife of Typhon and mother of Anubis by Oſiris.

NEPTUNE, in Pagan mythology, the god of the ſea, was the ſon of Saturn and Veſta, or Ops, and the brother of Jupiter and Pluto. He aſſiſted Jupiter in his expeditions; on which that god, when he arrived at the ſupreme power, aſſigned him the ſea and the iſlands for his empire. He was, however, expelled from heaven with Apollo for conſpiring againſt Jupiter, when they were both employed by Laomedon king of Phrygia in building the walls of Troy; but that prince diſmiſſing Neptune without a reward, he ſent a monſter to lay waſte the country, on which he was obliged to expoſe his daughter Heſione. He is ſaid to have been the firſt inventor of horſemanſhip and chariot racing: on which account Mithridates king of Pontus threw chariots drawn by four horſes into the ſea in honour of this god; and the Romans inſtituted horſe-races in the circus at this feſtival, during which all other horſes left working, and the mules were adorned with wreaths of flowers In a conteſt with Minerva he produced a horſe by ſtriking the earth with his trident; and on another occaſion, in a trial of ſkill with Minerva and Vulcan, produced a bull, whence that animal was ſacrificed to him. His favourite wife was AMPHYTRITE, whom he long courted in vain, till ſending the dolphin to intercede for him, he met with ſucceſs; on which he rewarded the dolphin by placing him among the ſtars. He had alſo two other wives, one of whom was called SALACIA from the ſalt-water; the other VENILIA from the ebbing and flowing of the tides. He had likewiſe many concubines, by whom he had a great number of children. To enjoy the company of the goddeſs CERES, who had aſſumed the form of a mare to avoid his importunities, he metamorphoſed himſelf into a horſe, and in this form begot the miraculous horſe Arion. (See ARION, N° 2.) To enjoy THEOPHANE, whom he had previouſly changed into a ſheep, to conceal her from her numerous admirers, he aſſumed the form of a ram, and conveyed her to the iſland Crumiſſa. where he had by her the celebrated *ram with the golden fleece,* which afterwards occaſioned the famous voyage of the Argonauts to Colchis. (See ARGONAUTS, N° 1; and PHRYXUS.) To gain the confidence of TYRO the daughter of Salmoneus, he took the form of the river god, Enipeus, and by her had PELIAS and NELEUS. He was alſo the father of the Cyclop POLYPHEMUS, and of PHORCYS, the father of the GORGONS, by Thooſa; of NYCTEUS, Lycus and Euphemus, by Celeno; of Agenor and Bellerophon, by Eurynome, the daughter of Nyſus; of the giants OTHUS and *Ephialtes,* (the latter of whom grew 9 inches every month,) by Iphimedia the daughter of the giant, Aloeus, whence the twins were called *Aloeides;* and many others too tedious to enumerate. He is repreſented with black hair, with a garment of an azure or ſea-green, holding his trident in his hand, and ſeated in a large ſhell drawn by ſea horſes, attended by the ſea-gods, Palemon, Glaucus, and Phorcys, and the ſea-goddeſſes Tethys, Thetis, Melita, and Panopæa, and a long train of Tritons and ſea-nymphs. In Egypt he was called *Canobus* or *Canopus,* and was worſhipped as the *numen aquarum* or ſpirit of the Nile. His emblem was the figure of certain vaſes or pitchers, with which the Egyptians filtrated the water of their ſacred river, in order to purify it and render it fit for uſe. From the mouth of each of theſe vaſes, which were charged with hieroglyphics, aroſe the head and ſometimes the head and hands of a man or woman. Such are the emblems which ſtill remain of the Egyptian Neptune or Canopus; and it was by this emblem that the tutelar god of Egypt vanquiſhed the god of Chaldea in the ridiculous manner mentioned by Ruffinus in his eccleſiaſtical hiſtory. See CANOPUS, N° 2, 3, and POLYTHEISM. The worſhip of Neptune was eſtabliſhed in almoſt every part of the pagan world. The Libyans in particular held him in high veneration. He was eſteemed not only god of the ocean, but of all rivers and fountains; and it was believed that he could alſo cauſe earthquakes at his pleaſure, and raiſe iſlands from the bottom of the ſea with a ſingle ſtroke of his trident. Homer repreſents him as croſſing the whole horizon at three ſteps!

NEPTUNIA, a town of Italy, in Magna Græcia.

NEPTUNII FANUM, 3 ancient towns of Italy.

NERBUDDA, a river of Indoſtan, which riſes from a lake in the S. part of Allahabad, bounds Indoſtan Proper and the Decan; and after running 550 miles W. falls into the Gulph of Cambay, 31 miles N. of Surat.

NEREIDES, **NEREIDS,** in the Pagan theology, ſea nymphs, daughters of Nereus and Doris.—The Nereids were eſteemed very handſome; inſomuch that Caſſiope, the wife of Cepheus king of Ethiopia, having triumphed over all the beauties of the age, and daring to vie with the Nereids, they were ſo enraged that they ſent a prodigous ſea-monſter into the country; and, to appeaſe them, ſhe was commanded by the oracle to expoſe her daughter Andromeda, bound to a rock, to be devoured by the monſter. See ANDROMEDA and PERSEUS. In ancient monuments, the Nereides are repreſented riding upon ſea-horſes; ſometimes with an entire human form, and at other times with the tail of a fiſh. Moſt mythologiſts enumerate 50 of them. Homer mentions 30; Apollodorus 45. THETIS the mother of Achilles was one of them.

END OF THE FIFTEENTH VOLUME.

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